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Guiding principles, state laws, and state board rules and regulations are covered, providing school administrators with a ready reference in the field of pupil transportation. Divided into three sections, the manual initially covers administrative procedures including--(1) the purchase of buses, (2) bus maintenance, (3) employment of drivers, (4) insurance, and (5) inter-agency relationships. The second section directly quotes Tennessee State Laws affecting pupil transportation. The final part consists of State Board of Education rules and regulations concerning bus operation, drivers, and minimum mechanical standards for school buses. (NI)

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MANUAL

FOR

SCHOOL ADMINISTRATORS

ON

PUPIL TRANSPORTATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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TENNESSEE STATE DEPARTMENT OF EDUCATION

Joe Morgan, Commissioner

FOREWORD

For many years the superintendents of schools in Tennessee who have a responsibility in the area of pupil transportation have expressed the need for a guide or manual on the administrative practices in the operation of pupil transportation programs. This need is most evident during the period when new superintendents assume the responsibility for the administration of system-wide school programs. In an effort to provide each school administrator with a ready reference covering many problems in this area, the Superintendents' Study Council requested the committee on School Buildings and Transportation to prepare a manual consisting of guiding principles, State Laws, and State Board Rules and Regulations.

We appreciate the effort of the building and transportation committee in preparing this report. It is felt that this document, which is only one of a series of similar cooperative studies undertaken by the Superintendents' Study Council, will be a valuable instrument for school administrators in the operation of effective pupil transportation programs throughout the State.

Joe Morgan

Commissioner

ACKNOWLEDGMENT

The committee is indebted to a National Committee under the leadership of Dr. Glen E. Featherston of the U. S. Department of Education for the idea and parts of the outline used in preparing the chapter on Administrative Procedures.

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CHAPTER I

ADMINISTRATIVE PROCEDURES

PURPOSES OF PUPIL TRANSPORTATION IN THE STATE

In 1910, school administrators in three county school systems initiated a limited program of pupil transportation services in order to equalize educational opportunities for children who could not attend the school within their communities because of excessive walking distances. Since the original plan of providing housing facilities for all rural high school pupils failed, school administrators were eager to accept this new idea and the transportation programs developed rapidly throughout the State.

With the improvement of roads and the mechanization of industry following World War I, the transportation programs changed from horse-drawn wagonettes to automobiles and trucks. These trucks, equipped with locally constructed wooden-type bodies, were satisfactory until the increased traffic situation and composite all steel bodies made them obsolete at the beginning of the 1930's.

During the various periods in which progress has been made in the development of equipment for transportation services, the basic concept of providing equal educational opportunities for all children has been maintained. The program of pupil transportation has been broadened to provide services, not only for an expanded school program but has included educational opportunities for children, by providing the use of busses for extracurricular services.

The major purposes of pupil transportation services can be defined then as follows:

1. To provide educational opportunities for all children regardless of the distance they may live from an appropriate school center of the proper grade level.
2. To provide educational experiences for children above that which might be obtained in a classroom situation.

GUIDING OBJECTIVES IN ESTABLISHING AND OPERATING TRANSPORTATION PROGRAMS

There are certain objectives which have stood out in the establishment and operation of pupil transportation programs in Tennessee. These objectives have proven to be necessary in the development of any satisfactory program of pupil transportation services and are as follows:

1. The first objective is to provide maximum safety for all pupils to be transported and in so doing, the following items should be observed by the boards of education:
    (a) Provide adequate and safe school bus equipment.

(b) Select drivers who are capable of operating vehicles.

(c) Make a thorough study of transportation routes in order to eliminate unnecessary hazards in operation.

(d) Provide for the adequate supervision of drivers and the maintenance of equipment.

2. The second objective is to provide transportation services at a low cost. In order to maintain an adequate program of pupil transportation within available funds, it is necessary for a school system to make constant studies and revisions in order to achieve the best service from the funds available for this purpose.

3. The third objective in the operation of a pupil transportation program is based on adequacy of service. In an effort to provide adequate services for all eligible children within a school system, boards of education should consider the following items:

   (a) A sufficient number of busses to provide transportation services on a system-wide basis for all children within a reasonable time limit.

   (b) To provide express type transportation services for children living in remote areas. This arrangement for services should be made to eliminate the necessity of children being required to remain on a school bus beyond the legal limit of 1½ hours.

4. A fourth objective requires efficiency in operation. Since the efficient operation of any transportation program depends upon the placement of responsibility, it is necessary that the following factors be given careful attention prior to, and during, the school term by all responsible persons connected with the program.

   (a) Observance of time schedules on a pre-planned basis in order to eliminate inconveniences to those students meeting or waiting for school busses.

   (b) Selection of appropriate bus stops so as to minimize the danger of accidents on heavily traveled highways.

   (c) Provide a sufficient number of busses to prevent overloads and lengthy routes.

   (d) Employ capable drivers within the communities to be served (when possible to do so) for economy purposes.

   (e) Maintain adequate maintenance facilities to insure minimum expense and maximum safety in operation.

ADMINISTRATIVE ORGANIZATION FOR AND RELATIONSHIP IN TRANSPORTATION

In providing satisfactory transportation facilities, careful attention must be given to the delegation of authority to responsible persons who are to be entrusted with the various phases of the overall program. Since the child's welfare becomes the major factor in gauging a successful pupil transportation program, it is therefore essential that qualified personnel be assigned to handle each phase of the responsibility. The responsibility for the administration of a transportation program should be based on the following criteria:

1. The board of education should adopt definite policies governing the operation of the pupil transportation program within a school system.

2. The superintendent of schools should be given full authority to carry out the policies adopted by the board of education. This should include the recommendation of drivers and all personnel necessary to perform pupil transportation services.

3. The superintendent should be provided with sufficient personnel to give adequate supervision to the program. In larger counties, this will require a full time transportation supervisor who should be directly responsible to the superintendent of schools.

The Transportation Supervisor

The supervisor of transportation should be recommended by the superintendent and elected by the board of education. He should be capable of administering the transportation program as formulated by the board of education and held directly responsible to the superintendent for its operation.

In assuming his responsibilities, he must become familiar with those duties commonly associated with his position. He must make certain that transportation is being provided on schedule for each route in the county. He must insure that the school board's policy regarding pupil transportation is being adhered to by all transportation personnel. He must assume full responsibility for the supervision of the maintenance program including the proper accounting of equipment, parts, and supplies; he must be able to advise with the superintendent and school principals on matters appertaining to pupil transportation and also make the necessary route adjustments in order to achieve maximum safety, efficiency, and economy in operation.

The School Principal

The school principal has certain responsibilities to the superintendent of schools in regard to the pupil transportation program. He must keep and submit a certified monthly report on the transportation of pupils who are enrolled in his school, indicating the number enrolled for transportation purposes and those actually transported. He must also assume full responsibility for the conduct of pupils who are transported on school busses. He must keep in close contact with the bus drivers and maintain a relationship on the same basis as with teachers and other school personnel.

The Chief Mechanic

The chief mechanic should be recommended by the superintendent of schools and employed by the county board of education. His responsibilities in general are as follows:

1. To supervise all mechanical work on school busses.
2. To maintain records, including inventory of parts and cost of repairs for individual busses.
3. To develop a preventive maintenance program which would eliminate unnecessary breakdowns, delays in schedule, and additional costs in operation.
4. To advise with the supervisor of transportation or superintendent in regard to the condition of busses and to make recommendations for replacements.

Board Policies Should Be Defined in Writing

To further simplify the operating efficiency of the pupil transportation program, the board of education should define those policies adopted under which the program is to be operated. Such policies should include:

1. Rules of behavior for all transported pupils.
2. The person responsible for the enforcement of such rules of behavior.
3. The zoning of all schools within the county.
4. The distance pupils must live off main routes before busses will be permitted to serve them.
5. The distance children will be required to walk to school.
6. The use of busses for extracurricular activities.
7. The hiring and firing of drivers.
8. The location of bus stops and approval of routes.

KEEPING UP-TO-DATE ON TRANSPORTATION NEEDS OF THE LOCAL UNIT

It is of utmost importance that school administrators keep up-to-date on the transportation needs within their areas of jurisdiction because of such factors as population shifts, location of school plants, topography of the area, and climatic conditions. It is equally as important to keep the program dynamic in order to more satisfactorily meet the needs of the communities to be served. The constant revision of transportation routes effected by consolidation and trends in population shifts makes it imperative that system-wide planning be continued in the area of school plant locations if optimum educational facilities are to be provided.

a. *Effect of location of new schools on transportation needs of the local unit*

The present trend toward consolidation appears to be gaining momentum on a state-wide scale and as a result, the need for revision of the transportation program has never been greater than at the present time. In many instances, school administrators are faced with numerous problems that could have avoided, in part at least, if proper planning had been made and adequate studies prepared. The acquisition of land sites, construction plans, and community pressures are only a few of the factors that must be considered. In realizing the most from original investments, additions should be made to the most strategically located existing building rather than to continue in use a multiple of buildings which have become outdated and impracticable for continued use.

b. *Study of pupil locations and the effect on transportation needs of the local unit*

The recent shift of pupil population from rural to urban areas makes it absolutely necessary for school administrators to maintain a continuous inventory of pupil locations. Through the use of spot maps it becomes possible to determine transportation needs prior to the opening of schools. School administrators who use this information wisely can often eliminate many problems in their entirety. The overcrowding of busses and classrooms are excellent examples of what can be expected when proper planning and the pre-determining of pupil locations have been neglected.

c. *Continuing study of school bus routes in relation to pupils to be transported*

In order to provide efficient transportation services on a system-wide basis, existing school bus routes must be in a constant state of revision. New routes must be provided whenever a concentration of pupils become sufficient in number to justify them. This often requires a complete reorganization of all routes; however, in many instances old routes can be extended when the need for increased services occurs but in remote or inaccessible areas feeder routes should be provided where an extension of older routes would not be feasible.

County boards of education should provide transportation services for those children living off the main bus routes whenever possible to do so. In some cases, such service will be impossible because of terrain and road conditions. When transportation cannot be provided, the policies adopted by the board should be specific enough to include the walking distance that will be required of children to meet busses. Consideration should be given to the problem of requiring children to walk unreasonable distances during periods of inclement weather. It is also necessary to consider the riding time of children who have already boarded busses since retraces off main thoroughfares to isolated communities will require excessive time in the operation of busses. In cases where requests are made for extension of bus routes, the board should give careful consideration as to how the changes would affect the welfare of all children being transported from any one community.

On both established and proposed routes, care should be taken in the location of school bus stops. It would not be desirable from either a standpoint of safety or economy to schedule a series of stops on a main artery of traffic when the grouping of pupils would be possible. The accepted practice of arranging school bus stops in distances of one-fourth mile in residential areas seems to provide a satisfactory service for children in all areas. The problem of school bus stops is non-existent in rural areas as busses are usually required by necessity to stop at each residence.

d. *Continuing study of school bus needs in the light of changes in school bus routes*

The constant shift of population in many communities makes it necessary for boards of education to make complete adjustments in transportation routes on an annual basis. The necessity of having sufficient information on location of students prior to the opening of schools is most essential. This information should be available before any equipment is assigned or any adjustment is made in the present routes in order to avoid confusion in the operation of transportation programs during the first few weeks of school.

e. *Continuing study of maintenance program and supply management in relation to size and character of school bus fleet*

In continuing the study of a maintenance program and supply management, the size and character of the fleet must be taken into consideration. Care should be taken to safeguard those items of equipment purchased in volume and effort should be made to avoid overstocking. Records should be kept on all parts and supplies purchased and on all equipment installed on all busses. In this manner actual operating costs can be figured for each bus and used as a basis for determining when unit replacements are in order and which dealer's units are more dependable from a standpoint of serviceability and economy.

PURCHASING SCHOOL BUSSES AND SUPPLIES

In the early stages of pupil transportation, certain interested groups realized that it would be necessary to provide minimum standards for busses within the various states if safety and economy were to be achieved at a reasonable cost. The State Board of Education in Tennessee adopts these standards which are revised at approximately five-year intervals after making only the necessary changes to provide the type vehicles adapted to the operation of busses in Tennessee. These standards are designed for the purpose of achieving maximum safety at the lowest cost and all vehicles used for school busses in Tennessee are purchased to meet these standards.

The proper procedure to obtain busses in Tennessee under the State Law is by sealed bids. County boards of education should first determine the number and size of busses which are needed for additional routes or replacements in sufficient time to assure delivery before the opening of school. This determination is generally made during the latter part of the previous school year and prior to the adoption of budgets for the next school year. When the number and size of busses needed have been determined, it then becomes necessary for the board of education and the administrative staff of each county to determine any locally desired additional equipment which may be needed on busses that is not included, but not prohibited, in the State Standards. All invitations to bidders should include these additional items with the statement that all vehicles must meet the standards as adopted by the State Board of Education, plus any additional items which might be listed on invitations to bid.

In a number of counties, the board of education is required to purchase busses through purchasing agents. In such cases, it is necessary that the board of education provide the purchasing agent with full information on the requirements for school busses. It should be clearly pointed out on the invitation to bid the exact capacity of busses needed and a definite schedule as to when delivery might be required.

The general procedure for purchasing equipment in Tennessee is to accept separate bids for school bus chassis and bodies. The invitation to chassis bidders should clearly point out that delivery of chassis from factory to body plant is a responsibility of the chassis dealer. The acceptance of delivery of the completed school bus should be made with the body manufacturer. In a majority of cases, the county boards of education have found it more desirable to accept delivery at the body plant. When this procedure is used, it gives the board of education the opportunity of sending the driver who will be responsible for the equipment thereby assuring proper breakin care during the first few miles of operation.

The county superintendent should be sure that he has obtained all tax exemption on all purchases of school bus equipment. This should include exemptions for Federal Excise Tax, as well as State Sales Tax. Consideration should be given also to any cash discount which might be available to the county as a result of off-season purchasing plans and multiunit purchases.

It is the responsibility of the local board of education to see that the equipment meets all of the standards set out in the State Board Rules and Regulations. In cases where questions might arise as to whether equipment meets State Standards, local officials should request a representative from the State Department of Education to make an inspection of all vehicles purchased prior to final acceptance.

SUPPLY MANAGEMENT

The importance of supply management cannot be overemphasized. The person assuming responsibility for this phase of the transportation program must be prepared to keep adequate records of supplies purchased, distributed, and the amounts in stock. Care must be taken to prevent overstocking and loss of materials through theft and to provide reasonable protection to eliminate fire hazards in storage areas. In the distribution of gasoline and oils, it is felt that service trucks would be more desirable than storage tanks, in that they would provide more satisfactory refueling services with a minimum of inconvenience and loss of time. When storage tanks are used, it should be controlled by the principal who will be given the responsibility of accounting for the number of gallons consumed.

Repair Parts—Records

Repair parts are usually and most economically purchased through competitive bidding, or through parts service departments where maximum discounts can be obtained. Current records should be kept to indicate the amount purchased, the amount used, and the balance on hand. A more complete record might be kept which would show the actual bus on which parts have been installed. This provides the superintendent, or transportation supervisor, with adequate up-to-date records without a need for a general inventory until such time as an inventory is required.

Inventories

In expanding on inventories, it should be pointed out that there is a definite need for at least one inventory each year. This inventory should include every item carried in stock and the number of each. Those items expended during the regular term should be deducted from the amount purchased at the beginning of the term or during the term so that the balance on hand can be determined with a minimum of effort.

SCHOOL BUS MAINTENANCE

The operating efficiency of any pupil transportation fleet is dependent upon capable personnel and facilities provided for school bus service. In counties where public ownership is maintained efficient personnel and a school bus garage are necessary to prevent delay in the operation of busses and excessive maintenance costs. Preventive maintenance services are necessary to secure peak performance of equipment over a long period of time without the necessity of making major repairs.

Facilities and Equipment

In securing the wide assortment of tools and equipment needed to carry on a preventive maintenance program, care should be taken in the quantity and quality of materials to be purchased. It is not only costly, but equally as unwise, to buy in excess of actual need. Every school bus facility should have sufficient space and equipment to repair any mechanical defect or failure experienced from minor to major repairs. Some of the equipment and facilities needed are as follows:

1. An adequate shop building or maintenance garage with service space, storerooms, and toilet facilities.

2. Shop equipment of adequate size and appropriate type for the fleet to be operated.

3. A fenced parking or storage area, at or near the shop, large enough to accommodate all the busses that are expected to be on hand at any one time.

4. A gasoline pump for fueling purposes.

5. Adequate washing, painting, and lubrication facilities.

6. A wrecker for emergency road service where the purchase is considered necessary and vital to the proper functioning of the overall program.

Staff Needs

A successful preventive maintenance program requires the services of persons who are fully trained and experienced in the operation and maintenance of school busses of the type to be used. Such personnel should be sufficient in number to meet the needs of the equipment to be serviced and wholly familiar with the transportation program in general. Generally speaking, it has been found that one full time mechanic is needed to maintain from 12 to 18 busses; however, the actual number needed will depend to a large extent upon the age and condition of the equipment in use.

Driver's Relation to Maintenance Program

The drivers of school busses are in better position to know the mechanical condition of school busses than any one else. This knowledge, when properly relayed to the transportation supervisor or chief mechanic, can be instrumental in reducing the amount of repair bills for any vehicle. In many instances, the driver is capable of making minor repairs thereby eliminating the necessity of school bus maintenance except for major repairs.

The policies of the boards of education should require the driver to make daily inspections of equipment before beginning the daily run. Some of the items which might be included in this daily inspection would be air pressure and condition of tires, possible radiator leaks, oil supply, performance of generator, and oil pump efficiency.

In many systems, boards of education have found it desirable to employ school bus drivers as part time mechanics. This arrangement not only provides full time employment for drivers but provides sufficient personnel for repair jobs during the period of the day when peak work loads are anticipated.

Procedures

Certain procedures are required to maintain a properly functioning transportation system. These procedures vary in proportion to the size and condition of the fleet. Provisions should be made to provide for observance of the following procedures:

1. *Regular Scheduled Inspection of All Equipment*

   The procedure to follow in conducting periodic inspection to insure against unnecessary repairs must be clearly outlined and the responsibility of the personnel involved in the inspections clearly defined. Regularity, completeness, and thoroughness during the inspections and follow-ups are essential to the success of the preventive maintenance program.

2. *Provision for Spare Busses*

   It is generally accepted by most transportation personnel that a spare bus should be provided for each ten busses of the fleet in order to handle emergencies resulting from mechanical failures without impairing the regular service being offered. In providing spare busses, it is essential that busses of the proper size for replacement of all equipment in use be maintained. It is also essential that the condition of spare busses be such that maximum safety can be provided while this equipment is in use.

3. *Summer Programs*

   Perhaps the most important phase of the school bus maintenance program is during the summer months. It is during this period that the maintenance personnel has an opportunity to make a thorough inspection of all equipment to be used during the next school year. It also provides sufficient time when maintenance personnel can make necessary repairs without being under pressure to meet time schedules. Many major breakdowns, which occur during the school year, can be eliminated by the proper maintenance of busses during the summer months. It should also be pointed out that school busses could be stored in a protected area near the school bus shop where battery removal would be possible during the time busses are not in use. It is essential for boards of education to provide space for storage in order to eliminate the possibility of vandalism.

Maintenance Costs as Related to Bus Replacement

In many instances it has proven to be more economical to replace a bus with a new unit rather than to continue its operation beyond normal life expectancy. A careful analysis of the cost of operation for individual busses should be considered as one of the criteria used in the arrangement of a replacement schedule. As the age of busses increases, it is normal for the cost of operation to increase on the same basis as the depreciation schedule decreases.

Statement as to Age of Busses for Replacement

A study of school bus operation over a period of years by the State Department of Education shows that in most cases boards of education should not attempt to operate busses which have been in service for periods of 11 or more years. The type service rendered with equipment beyond this age is generally unsatisfactory and the cost of operation becomes prohibitive. The replacement of busses should be made when the cost of repairs exceeds the annual depreciation schedule for new equipment. The depreciation schedule generally accepted by pupil transportation authorities is as follows:

1st year	20%	8th year	87%
2nd year	38%	9th year	89%
3rd year	53%	10th year	91%
4th year	64%	11th year	93%
5th year	72%	12th year	94%
6th year	78%	13th year	95%
7th year	83%	14th year	96%

Bus Storage

Adequate storage areas can be met through either the use of school bus garages or fenced-in areas. With the favorable climatic conditions which prevail in so large an area of the State there is little need for garage storage facilities. In the majority of cases, it is impossible to provide bus storage for equipment during the school year since boards of education have no authority to construct school bus garages at the point where school bus routes must, of necessity, originate. Covered storage areas, which is the more expensive of the two methods, can hardly be justified for the short period when school busses are not in use, therefore the general practice of providing fenced-in areas to eliminate vandalism during the summer months in an area near the school bus shop has proven to be more satisfactory.

EMPLOYING AND SUPERVISING DRIVERS

The superintendents of the various school systems within the State are entrusted with the responsibility of recommending all prospective school bus drivers to their respective boards of education for employment. In addition to this responsibility the superintendent is also expected to supervise the bus drivers when his system is not sufficient in size to justify the services of a full-time transportation supervisor. When such a position can be justified, the superintendent is authorized to delegate this responsibility to the transportation supervisor. The right to employ and dismiss drivers, however, remains the sole responsibility of the local board of education.

Standards for Drivers

Standards to be observed by local boards of education in the employment of school bus drivers, as formulated by the State Board of Education, are as follows:

1. He must possess a special chauffeur's license.
2. He must not have reached his fifty-fifth birthday if a new driver, unless previously employed by the board of education as a driver.

3. He must undergo one physical examination a year until the age of fifty-five, then two thereafter.

4. He must be of good moral character, and in good physical condition.

5. He must be neat in appearance, courteous to parents and children, and cooperative with teachers and school officials.

Procedures in Selecting Drivers

The superintendent of schools has the responsibility of recommending individual bus drivers to the local board of education for employment. Applications from prospective drivers should be carefully reviewed before a recommendation is made to the board. Every effort must be made to secure competent drivers who are fully qualified, and, when possible, substitute drivers should be given preference because of their familiarity with the program in operation. Other factors to be considered are as follows:

1. The location of the driver's residence in relation to the origin of his prospective route.

2. Careful evaluation of his background with special emphasis on temperament, personal habits, and character traits.

3. Complete investigation of all application data.

Training Programs—Pre-service and In-service

The organization of a school bus driver training program on a State-wide basis is a relatively recent development. It is sponsored by the State Department of Education, and is conducted on a request or voluntary basis. The program consists of psycho-physical tests designed to provide information in the following areas:

1. Visual acuity
2. Reaction time
3. Distance judgment
4. Field of vision
5. Steadiness
6. Color vision
7. Night vision
8. Glare vision

Before completing the 20-hour course, the driver is taken on a road test where emphasis is placed on the following items:

1. Starting engine
2. Starting in super low
3. Clutching, shifting to higher gear (acceleration)
4. Clutching, shifting to lower gear (de-acceleration)
5. Steering

6. Speed control
7. Position of vehicle on roadway
8. Proper signaling
9. Procedure at school bus stop
10. Backing
11. Smoothness of operation
12. Observation of traffic laws

Upon completion of the program, every participant is presented a certificate indicating attendance and progress.

Licensing Drivers

The requirements for school bus drivers in Tennessee are considered either equal to, or higher, than the requirements of other states in the Southeast. Paragraphs (a) and (b) of Part 6 in the State of Tennessee Motor Vehicle Laws confirm this thinking. It reads:

> "(a) No person who is under the age of twenty-one years shall drive any motor vehicle while in use as a school bus for the transportation of pupils to or from school, nor any motor vehicle while in use as a public or common carrier of persons or property, nor in either event until he has been licensed as a chauffeur and received a special chauffeur's license.
>
> (b) No person shall be granted a special chauffeur's license unless he has had one year of driving experience prior to the issuance thereof, nor until he files with the Division a certificate showing his employment as such chauffeur and one or more certificates signed by a total of at least three responsible people to whom he is well known certifying as to his good character and habits."

Defining Drivers' Responsibilities and Relationships

In accepting the conditions included in his contract with the local board of education, the school bus driver automatically accepts the responsibilities designated by the State Board of Education. While fulfilling his obligations under the county board of education contract, he is expected to accept and assume the following responsibilities set out in the Rules and Regulations of the State Board of Education:

> "6. Each school bus driver shall be responsible for sweeping and cleaning his bus at least once each day.
>
> 7. School bus drivers shall obey all State and local traffic regulations, and shall assist motorists in passing school bus between stops.
>
> 8. Each school bus driver shall report any misconduct of pupils to the principal of the school to which the pupils belong.
>
> 9. It shall be the duty of each driver of a school bus to promote safety habits with the group of pupils which he transports."

The driver must be courteous to parents and pupils, cooperative with principals and teachers, and maintain satisfactory control of children entrusted to his care. The relationship of the driver to the various groups mentioned above is highly important in the operation of a successful pupil transportation program.

Supervision of Drivers

The supervision of drivers is largely a responsibility of the superintendent of schools. It is necessary, however, for the superintendent to delegate such authority as may be necessary to principals, and the transportation supervisor. The supervision of drivers cannot be neglected if a satisfactory transportation program is maintained. The arrangement of schedules, as well as the proper relationship between pupil, parent, and driver requires constant supervision.

INSURANCE

Every county operating a transportation system is required by law to carry liability insurance. The county board of education may also carry insurance which provides medical payments for injuries to pupils while being transported. The majority of boards include in their insurance programs coverage on vehicles which might result from losses by fire, collision, or vandalism.

Types of Coverage

The principal types of insurance coverage for pupil transportation systems operated by the various county boards of education are discussed in the sections that follow:

Liability Insurance

Liability insurance is designed to protect the insured against any liability claim which results from an accident. Liability insurance coverage is divided into two categories. The first category might be described as the maximum coverage for the total number of people who might be injured or killed in any one accident. A maximum amount of liability coverage is also specified for the death or injury of a single individual. The property damage coverage under liability insurance is a feature which protects the county board of education or individual contractor against claims submitted for damage or destruction of property resulting from an accident with a school bus. The minimum amount of liability coverage in each category should not be less than that required by the State Board of Education.

Medical Payments

A county board of education might find it advisable to provide insurance protection for pupils who use its transportation facilities in the event of injuries resulting from accidents not attributable to negligence on the part of the county board of education or its employees. This is a form of accident insurance which is not required by law and is not to be confused with liability insurance coming under the bodily injury or property damage categories.

Physical Damage Coverages

Included under this type of coverages are the following types:

Fire and Theft—This type of coverage is generally written in a combined policy at a rate which does not exceed the rate normally charged for fire coverage. This comprehensive policy is designed to cover fire, theft, and damage to vehicles or articles inside the affected vehicle.

Collision — This coverage protects the county board of education against loss for any damages to the vehicle above a specified amount. For example, if the specified amount of $50 was stated, the cost of making repairs resulting from any accident above this amount would be paid by the insurance company.

Required Amounts of Coverage

(See State Board of Education Rules and Regulations, Page 34)

Purchase Procedures

Certain factors like the density of population and the past accident record of the area in which the county is located will affect the cost of insurance premiums. In order to secure the best possible coverage at the most reasonable cost, purchase of insurance by competitive bids is generally accepted.

Some of the advantages secured by competitive bidding might include fleet discounts and premium credits earned by establishing and maintaining a good experience record which often results in a reduction in premium payments.

USE OF BUSSES FOR PURPOSES OTHER THAN TRANSPORTATION OF PUPILS TO AND FROM SCHOOL

The board of education may provide special transportation to enable pupils to take part in a variety of educational activities which occur outside the walls of the classroom. In many instances, classroom schedules are arranged to allow the transportation of pupils to centers of interest within the community. The transportation of history students to points of historical interest, vocational agriculture students to farms for livestock judging, soil testing and demonstration programs in proper methods of land cultivation, athletic programs for competitive sports between neighboring community schools, and limited out-of-State trips are justified in that the learning experiences have been expanded for those participating in this rather recent phase of the educational program. It is, under no circumstances, advisable to use busses for extracurricular programs and activities unless every precaution has been taken to prevent any interference with the regular transportation services provided for children to and from school.

Extent Permissible Under State Laws and Regulations

At the present time, neither the State of Tennessee nor any of its representative agencies have any laws or regulations regarding the use of school busses for extracurricular school activities. Since the local boards of education either own or secure the services of busses through the private contract system, the State Legislature and the State Board of Education have refrained from regulatory measures and have left the control entirely with the local boards of education; however, it is felt that counties permitting such use of its equipment should take every precaution to see that adequate insurance coverage and fully qualified drivers are provided for every trip. Since extracurricular trips occurring after the school term has expired are not covered by the insurance carried for the regular year, endorsements for such coverage should be provided and when the trip does not pertain to school activities, the driver must possess a commercial license in order to operate within the law.

Study of Opportunities in Community for Experiences Approved in Relation to Instructional Program

In every community there are resources present to supplement and enrich the regular educational program being conducted by the local board of education. There can be no question as to the importance of supplementing the curriculum with actual experiences. For the past few years, field trips have been gaining in popularity among educators as a means of teaching conservation and the natural sciences; historical trips have simplified the teaching of history and other ways have been found to further enrich the educational opportunities being provided the student by bringing him face to face with facts in the other fields included in the curriculum. Before the approval of busses for trips is granted, school administrators should be assured that definite plans on the part of principals and instructors have been made in order to assure that a learning experience will prevail.

Policies of Board of Education to Govern Such Use of Busses

The primary purpose of the pupil transportation program in Tennessee has been to equalize educational opportunities for all children. In order to accomplish this objective, it becomes necessary for local boards of education to set up some policies governing the use of school busses.

These policies should include:

1. Regulations which would provide for a regular daily service for all children to and from school within a reasonable time limit.
2. Provide for the use of busses for extracurricular trips in an effort to enrich the educational program on a system-wide basis.

Provisions for Financing the Cost of Extracurricular Trips

It is the responsibility of the board of education to work out a reasonable cost for the use of busses for all trips in which the board does not assume the cost of operation. The general practice of providing transportation services for many extracurricular trips can be justified by the board of education since these trips are designed to improve the instructional program. On some trips, however, it would be necessary for the individual school to assume the responsibility for the cost of transportation services. The board of education should have a specific schedule or mileage basis whereby the individual school would know exactly the amount which would be charged on a trip prior to the use of busses. For school systems operating under the private contract system, the amount of service charge which a private contractor might charge the board or individual school should be specified in the contract with the private operator. The contract should also contain a provision whereby private contractors would be required to provide service for extracurricular trips when request was made by the school administrator.

Trip Procedures

The arrangement for trips by the individual schools should be made through the superintendent or his designated representative. The request from principals for the use of busses should be made early to allow sufficient time for arrangements which would not interfere with the regular transportation program. It is also essential to have prior approval in order to eliminate the necessity of using substitute drivers.

Obtaining Approved Drivers

The board of education should set a definite policy that only regular bus drivers could be used on extracurricular trips or a duly appointed substitute driver meeting all the requirements of a regular driver as provided under State law.

Arranging Trip Schedules

The schedule of trips to be made by school personnel for the school year should be completed as early as possible and presented for approval well in advance of the anticipated trip so as not to interfere with the operation of the general school program. A schedule of such trips should be prepared by the principal or his representative and then forwarded to the superintendent for approval. It should always be kept in mind when scheduling trips that they are supplementary in nature and should in no way be scheduled when such scheduling conflicts or interferes with the pursuit of the over-all educational program.

Use of Approved Equipment

The board of education should use only school busses for extracurricular trips which have been approved by the State Department of Education and which meet the same standards as busses used in the regular transportation program. If commercial busses are used, the board of education should be assured that the equipment meets the standards as specified by the Interstate Commerce Commission for commercial carriers.

Supervision for Extracurricular Trips

The board of education should require the principal to provide adequate supervision of pupils on all trips. This can be accomplished through the assignment of teachers who will have some special interest in the activity which is being provided for the students. A school group should never be authorized to make a trip when adequate supervision is not provided.

Report of Extracurricular Trips

The board of education should provide proper forms for reporting the information need on each individual trip where school busses are used. It is the responsibility of the principals to furnish the superintendent of schools a complete report on each trip specifying the number of miles traveled, the name of the driver used, and any other information which may be required on the form as prepared and approved by the board of education.

Insurance Coverage

Liability insurance coverage is provided for school busses to cover a certain area. In the event school busses are used for extracurricular purposes, the superintendent of schools should determine before approval is granted whether the trip requested is within the limits covered in the liability insurance policy. In the event trips are made beyond the distance allowed under the regular coverages, a binder should be requested which would provide adequate coverage for trips beyond the distance specified in the fleet policy.

Mileage Limitations

The board of education should adopt a policy which would limit the distance school busses might be used for extracurricular trips. This is essential since it is necessary to have equipment available to provide the regular transportation service on a system-wide basis. The operation of school busses over wide areas presents a problem for school administrators. In cases where extended trips of the recreational type are planned, arrangements should be made for commercial transportation in order to eliminate possible conflicts with the transportation services being provided for the regular school program.

PRINCIPAL, PUPIL, AND PARENT RELATIONSHIP TO THE TRANSPORTATION PROGRAM

A successful pupil transportation program depends to a large extent upon the attitude of principals, pupils, and the patrons within the school area. The neglect of individual responsibilities on the part of any of the three tends to reduce efficiency in service. A good relationship between the three eliminates many unnecessary problems in the administration of pupil transportation services.

Pupil Responsibilities

The board of education has the right to expect absolute compliance with all regulations for pupils using transportation facilities. If regulations are adopted affecting pupil conduct and safety, a copy of such regulations should be provided each pupil and bus driver. It may be advisable to also post a copy in each school bus. These regulations should contain the board's position on seating arrangements, conduct, and safety requirements. Each regulation should be clearly written and composed in language that is not too difficult for the youngest student to understand.

Developing Pupil Understanding of Responsibilities Under Rules and Regulations

During the first week of the school year, special emphasis should be placed upon familiarizing all students with the rules and regulations pertaining to the boarding, riding, and departure from school busses. This can best be accomplished through group instruction either in the classroom or by the principals and drivers meeting with pupils of individual load groups or with all pupils being transported in any particular school.

Handling of Disciplinary Problems

When a student's behavior is such that discipline becomes necessary, the school bus driver should first inform the principals of any misconduct on the part of pupils. In extreme cases where behavior is such that the safety of the entire group might be jeopardized by the conduct of one or more pupils, the school bus driver should be instructed to refuse to pick up children at their homes until such time as the students have cleared the matter with the school principal. A school bus driver should never leave a child at any point en route home but should have authority to refuse service on the next regular trip until the pupil and parents have cleared the matter with the school principal.

In regard to pupil behavior, the RULES AND REGULATIONS, Part IV, page 35, as formulated by the State Board of Education states:

> "A pupil shall become ineligible for pupil transportation when his behavior is such as to cause dissension on a school bus, or when he disobeys State or local rules and regulations pertaining to pupil transportation."

Defining Parent Responsibilities

Perhaps the parent's greatest responsibility in connection with the transportation program is the shaping of his children's attitude toward the driver and school officials. In some instances, children's misbehavior can be attributed to a breakdown in the parent, principal, and driver relationships. To prevent any misunderstandings in relationships, parents should have an opportunity to know the policies of the boards of education. The local school faculty should make every effort to inform parents of existing regulations and what is expected of their children as students. In some instances, schools have solved this problem through the use of forums and public meetings on safety and pupil conduct on school busses.

Defining Principal Responsibilities

Much of the credit for the success of any transportation system can be attributed to the school principal, who must assume full responsibility for the pupils' conduct on the bus in the same manner as he would in the classroom. The transportation program can then be used as a means of extending the education of the child during the entire period he is an occupant of the bus since it provides him with an opportunity to practice courtesy and safety and to develop respect for authority. The principal should keep parents and students informed of any changes in regulations which might affect the child's welfare.

RELATIONS OF THE LOCAL UNIT WITH THE STATE

Responsibility for the operation of pupil transportation programs has been left almost entirely with the local boards of education subject to certain rules and regulations formulated by the State Board of Education which must be observed by the local units. The State Department of Education has personnel available, upon request, to assist local units in obtaining desired levels of efficiency and economy in operation when such services might not be available on the local level.

Provisions for State Support

The method of distributing transportation funds under the General Education Act has been changed two times since 1937 when they were dispensed on a per capita basis for elementary school children only. In 1943, the Act was amended to include high school students for the first time, and in 1947, equalization went into effect providing for the disbursement of additional funds to include the difference in operational costs in the various equalizing counties.

The method for the distribution of transportation funds under the 1947 General Education Act was based upon two factors:

1. A per capita amount of $10 to be allowed for students transported 1½ miles or more, based on an average daily attendance basis which was to compensate for certain fixed costs such as insurance, depreciation, and driver's salaries.
2. Distribution of the remainder appropriated for pupil transportation on the basis of a density formula whereby counties experiencing greater operational costs because of sparsely settled areas will receive more funds with which to transport these children than the more densely populated counties that do not experience this problem.

Areas Covered by Standards

The standards for employment of school bus drivers are rigid enough to assure maximum safety in the operation of busses for transportation purposes. The standards as embodied in the Public School Law of 1937, Chapter 90, Section 5, are either equal to or higher than the requirements in other states in the Southeast. Specific standards have been developed to test the driving skills and confirm the physical fitness and integrity of all school bus drivers employed by local boards of education.

Insurance standards have been flexible, yet adequate, for the protection of the children being transported and the county board of education that is providing the transportation services. Public School Law of 1947, Chapter 92, Section 13, states:

> "No school bus shall be operated to transport children to and from school unless said school bus is insured for liability and property damages according to the RULES AND REGULATIONS of the State Board of Education."

The standards for school bus routes have been less restrictive than most other standards in that no attempt has been made to regulate the length of school bus routes; however, such routes as are necessary to provide transportation services which will enable counties to comply with the

1½ hour time limit in Public School Law of 1954, Chapter 39, Section 371, paragraph 2495.4, are required. This law on the time permitted in transit is as follows:

> "No pupil shall be allowed to remain in transit to or from school on a school bus more than 1½ hours in the morning or 1½ hours in the afternoon."

The Public School Law of 1947, Chapter 92, Section 6, provides for "the approval of all school bus routes by the State Commissioner of Education in order that the most efficient and economical services may be rendered."

This was amended in Chapter 233, Section 2 of the 1949 Public School Law making this approval applicable only

> "when a specific request for such approval is made by the county board of education where the school bus routes are located."

Standards regarding the overcrowding of school busses have been strengthened by an amendment of Section 49-2212 of the Tennessee Code Annotated specifying

> "that the State Commissioner may, under rules and regulations approved by him and adopted by the State Board of Education, issue permits to a local board of education allowing the number of pupils transported on a school bus to exceed the limit herein prescribed up to but not to exceed 20 per cent of the manufacturer's rated seating capacity. In no event, however, shall a permit be issued authorizing the loading of a school bus beyond the limits of safety."

The Public School Law of 1954, Chapter 39, Section 283, paragraph 2495.15 provides for the inspection of all school busses transporting students to and from school:

> "The State Commissioner of Education is hereby directed to have made not less than one inspection annually of each school bus which transports school children in order to determine whether it can be used safely to protect properly the lives of school children."

Area Covered by Rules and Regulations

In instances where specific areas of pupil transportation services have not been covered by law, the authority has been delegated to the State Board of Education to develop rules and regulations to cover these areas.

In the area of school bus inspection, reference has been given to the time a county is allowed to make the corrections and repairs noted as being needed at the time of inspection. This reference is as follows:

> "In case repairs or corrections are necessary to put equipment in condition to meet State requirements, the Commissioner of Education is authorized to allow counties a reasonable time to make necessary corrections to meet requirements."

In instances of non-compliance with the above standards, provisions have been made to withhold transportation funds for those pupils who are transported on non-approved school busses during the school year of non-compliance. This authority is taken from Part IV, RULES AND REGULATIONS of the State Board of Education, which reads as follows:

> "The allocation of minimum program funds for pupil transportation shall be based on the average number of pupils transported during the previous year. Deductions for pupils transported in non-approved

> busses shall be based on the number of pupils transported in non-approved busses during the current school year."

In regard to the routing and transporting of children from one county to another, the following stipulation is found:

> "No school bus shall enter another county for the purpose of transporting pupils without the mutual consent of the counties concerned, under a written agreement signed by the chairman and the secretary of the county board of education of each of said counties, a copy of which shall be forwarded to the State Commissioner of Education."

In the matter of pupil conduct aboard school busses, the regulations provide that:

> "A pupil shall become ineligible for pupil transportation when his behavior is such as to cause dissension on a school bus or when he disobeys State or local rules pertaining to pupil transportation."

Regulations regarding the assignment of responsibility for maintaining the local records to be kept on transportation costs are as follows:

> "The superintendent of schools shall keep records of transportation costs and the number of pupils transported on a monthly basis, and make such reports to the State Commissioner of Education as he may require."

In addition to the above references, the State Board of Education RULES AND REGULATIONS also contain the minimum standards for school busses, requirements for employment of school bus drivers, and procedures for operation of school busses.

Areas of Service from State Department of Education

The State Department of Education has been able to provide assistance to superintendents and boards of education in a wide variety of areas. Perhaps the greatest assistance has been directed in the following areas: Local surveys, making budgets, shop layouts and equipment, maintenance procedures, driver selection and training, and insurance programs.

Local surveys are made on a request from local boards of education for an evaluation of their present routings. Representatives of the State Department of Education are available to assist local school authorities in the development of more efficient and economical transportation programs.

Representatives from the State Department of Education are also available for assistance to superintendents in estimating the cost for the various items to be included in their yearly transportation budget. Assistance will be given in regard to preparing bids for bus chassis and bodies, purchase of tools and equipment, and other related transportation needs.

Superintendents can expect assistance in the preparation of shop layout and equipment and the establishment of maintenance procedures. This assistance will include estimates on the cost of necessary maintenance construction, purchasing cost of equipment needed to perform satisfactory maintenance services, and recommended salaries for maintenance employees.

In those counties requesting training programs for the school bus operators, a 20-hour course in driver training is available. This course is composed of a series of psychophysical tests to determine reaction, distance judgment, steadiness, field of vision, and the actual operation of a school bus to measure his driving skill.

Assistance is also available for superintendents desiring information on types, quantity, and kind of insurance to purchase in order to be in compliance with the State Board of Education RULES AND REGULATIONS covering liability insurance.

Informational and Research Activities of the State Department of Education

The personnel of the State Department of Education in the Area of Pupil Transportation attempts to keep in contact with groups and individuals doing research in connection with pupil transportation services. Any information in regard to the improvement of equipment or methods or procedure are passed on to the local school administrators.

Many improvements in school bus equipment have resulted from the pooling of information on various items by local school administrators and the State Department of Education.

The State Department personnel have assisted college students in securing needed information for studies on pupil transportation.

Relations with State Police, Highway Authorities, Motor Vehicle Department, Etc.

The relationship between the State Department of Education, local school administrators, and other State and local agencies which render assistance in the operation of the various pupil transportation programs has been excellent. The State Department of Safety provides many services to assist school administrators in the operation of busses. The local law enforcement agencies likewise assist local boards of education in the safe operation of busses.

The State and local highway departments have attempted to eliminate hazards which exist on roads traveled by school busses.

RECORDS AND REPORTS

Financial Accounting

Complete records should be kept on the purchasing and expenditures on all items for pupil transportation services. It is the responsibility of the superintendent of schools to maintain such financial and statistical records as may be necessary to provide the local board of education and the State Department of Education any information covering the operation of school busses during any school year. The superintendent, in many cases, finds it necessary to delegate the authority to the transportation supervisor or others having the responsibility for pupil transportation services.

Records on Pupils Transported, Days Operated, Miles Traveled, Etc.

The records to be maintained on pupils transported, the days schools were in operation, and the miles traveled daily should originate in the offices of the various school principals within the system. The State Department of Education supplies records for this purpose and when properly used are usually sufficient to place all needed information of this type within easy reach of the superintendent when he prepares his annual statistical report for the school year. The SPT2 forms and principal check sheets along with the teacher's register are invaluable for securing and maintaining information of this type.

Maintenance and Inspection Records—Supply Records

Each vehicle should be kept under close scrutiny for the entire school year. An inspection schedule should be made to include every vehicle within the fleet. The regularity of such inspections should be so scheduled that minor deficiencies could be found and corrected before they become major repairs. In order to initiate a successful maintenance program, qualified personnel must be employed who can detect and repair school bus equipment and who are trustworthy and dependable enough to use with care and economy all county owned repair parts or materials and equipment.

Proper use of the State Department of Education *Monthly Cost Account* and *Combined Monthly Cost Account* forms will provide the proper authorities with a detailed accounting of all parts, gasoline, and oil used on each unit within the fleet. When maximum use is made of these forms, the superintendent and board should have no difficulty in understanding where and how their supplies have been used.

Accident Records and Reports

Upon each occasion of an accident, a report should be prepared by transportation officials and presented to the superintendent of schools. This report should include the date of the accident, the area in which it occurred, the condition under which it occurred, driver of vehicle, and extent of the damage to passengers and vehicle. Statements from witnesses should be attached as part of the report. In every instance, the proper forms required by law should be filed with the Department of Safety as soon as possible.

Records to be Kept on Drivers

The school bus driver is an important and responsible person in any county's transportation program and certain records are necessary to be kept on his behalf. Among the more important of these records is his contract to drive, including his home address and telephone number. In addition, the superintendent should have a vital statistics record for each of his drivers, including his special chauffeurs license number, a copy of his physical examination, and a record of each accident in which he has been involved during his period of employment.

Inventory Records of Busses and Equipment

A yearly inventory should be made of all busses and equipment. Busses should be numbered so they can be more easily identified on office records. When busses are in need of replacement and are replaced, the number system should not be changed. New busses should take old bus numbers to remove possible conflicts on bus identification records. In regard to equipment, a careful inventory should be made on each item carried in stock. Upon completion of the inventory, the amount on hand and the amount expended should be equal to the amount purchased.

Insurance Record

A policy designating each bus covered, the amount of coverage on each unit, and the limitations, if any, of the insuring company should be kept on file in the superintendent's office at all times. Records of claims received should also be maintained over a five-year period in order to have a record of accidents to justify possible reduction on future premium costs.

Operation and Maintenance Record by Bus and Totals for Year

Perhaps the greatest advantage to be obtained from keeping operation and maintenance records on each bus by the year is to give school officials a comparative cost of the different make chassis and bodies in use within their transportation fleet. Another advantage to be realized from these records is knowing when a unit is becoming too expensive to continue operating. It would not be unreasonable to assume that a county experiencing difficulty with a certain make body or chassis when verified by a yearly itemized record of such costs would not care to risk another investment on that type unit. In addition to the above advantages, budgeting the coming year's expected operating costs is always much easier when the areas of greatest and least needs are known to transportation officials.

CHAPTER II

STATE LAWS OR SECTIONS OF LAWS AFFECTING PUPIL TRANSPORTATION

DISTRIBUTION OF FUNDS FOR PUPIL TRANSPORTATION TO EQUALIZING COUNTIES

(2) Public Chapter No. 5 (1961), Section 4, Part 2.
Pupil transportation services shall be defined by the State Board of Education and approved by the State Commissioner of Education, and the cost thereof shall be allowed in the annual minimum foundation school program for current operation and maintenance purposes of equalizing counties and shall be determined in the following manner:

(a) For the fiscal year beginning July 1, 1961, there shall be made available, in the aggregate minimum foundation school programs of equalizing counties (including both State and local funds), for the aggregate state-wide cost of pupil transportation services in equalizing counties the sum of Nine Million, Four Thousand ($9,004,000.00) Dollars, and for each fiscal year thereafter there shall be made available in the aggregate minimum foundation school program of equalizing counties (including both State and local funds), for the aggregate state-wide cost of pupil transportation services in equalizing counties the sum of Nine Million, One Hundred Eighty Thousand ($9,180,000.00) Dollars; provided that the State Commissioner of Education shall have the authority to increase or decrease the aggregate state-wide amount for pupil transportation services in equalizing counties and the aggregate annual amount allocated for the cost of pupil transportation services in Section 7 of this Act to non-equalizing counties, to the end that a unified transportation program may be effectuated.

(b) There shall be allowed in the minimum foundation school program for each equalizing county for the cost of pupil transportation purposes the following:

((1)) Ten ($10.00) Dollars shall be allowed for each pupil transported during the preceding school year, according to the rules and regulations of the State Board of Education and approved by the State Commissioner of Education.

((2)) The amount remaining out of the total allocated for pupil transportation services in equalizing counties, after the allowance in ((1)) above has been deducted, shall be allowed to the various equalizing counties, according to the ratio of the average rural population per square mile in the State to the average rural population per square mile in the county.

The cost of pupil transportation services in a county shall be determined by adding together the allowances made in such county under ((1)) and ((2)) above. In making the allowance herein provided for pupil transportation, only the average daily attendance of pupils transported at public expense who live one and one-half (1½) miles or more from the school to which they are assigned by the respective board of education and in which they are enrolled shall be taken into account; provided, however, that the county board of education may in its discretion provide, at local expense pupil transportation facilities for children who live less than one and one-half (1½) miles from the school to which they are assigned by the respective board of education and in which they are enrolled provided further that State transportation funds may be distributed to counties under the rules and regulations of the State Board of Education and approved by the State Commissioner of Education for the transportation of physically handicapped pupils who are transported less than one and one-half (1½) miles.

It is further provided that the amount of any funds allowed in the minimum foundation school program of an equalizing county for transportation services which are unused and unobligated for pupil transportation services at the end of the fiscal school year shall be certified by the county superintendent of schools to the county trustee, who shall transfer such unused and unobligated funds to the "State Capital Outlay School Fund" of that county school system as provided in Section 15 of this Act.

Distribution of Transportation Funds to Non-Equalizing Counties. Public Chapter 5 (1961), Section 7.

There shall be allocated from the appropriations made in Section 2 of this Act, subject to the provisions of Section 4 of this Act, an aggregate annual amount for the cost of pupil transportation services in the non-equalizing counties; for the fiscal year beginning July 1, 1961, the amount of Three Hundred Thousand ($300,000.00) Dollars is hereby allocated; and for the fiscal year beginning July 1, 1962, and for each fiscal year thereafter the amount of Three Hundred Thousand ($300,000.00) Dollars is hereby allocated. The distribution of funds for pupil transportation purposes shall be made only to non-equalizing counties maintaining a transportation system approved by the State Board of Education, and the amount distributed to each non-equalizing county shall not exceed Eight ($8.00) Dollars per pupil in average daily attendance for the previous school year, who lives not less than one and one-half (1½) miles from the school to which he is assigned by the respective board of education and in which he is enrolled and transported at public expense, and an amount not to exceed Eight ($8.00) Dollars for each physically handicapped pupil who lives less than one and one-half (1½) miles from the school to which he is assigned by the respective board of education and in which he is enrolled and transported in accordance with the rules and regulations of the State Board of Education and approved by the State Commissioner of Education.

Use of State Capital Outlay Funds for Pupil Transportation. Public Chapter 5 (1961), Section 15, Part 5.

An amount not to exceed fifteen (15%) per cent of the county's share of any fund distributed to any county under the provisions of this section may be used for the operation of privately owned pupil transportation equipment on a contract basis. The amount of funds so distributed to the respective counties, cities, and special school districts under the provisions of this section may be used in the discretion of the county, city, or special school district board of education for the payment of the principal and interest on any bonds of original issue, or other forms of legal indebtedness of original issue, issued by said county, city, or special school district for school capital outlay purposes since July 1, 1947, including school bonds refunding school capital outlay of bonds of original issue since July 1, 1947.

Power of Boards to Provide Transportation. 49-2201, Tennessee Code Annotated. Boards of education may provide school transportation facilities for children who live over one and one-half (1½) miles by the nearest accessible route from the school to which they are assigned by the board of education and in which they are enrolled; provided, however, that boards of education may, in their discretion, provide school transportation facilities for children who live less than one and one-half (1½) miles by the nearest accessible route from the school in which they are enrolled, but the county shall not be entitled to receive state transportation funds for any student, other than physically handicapped children, who live less than one and one-half (1½) miles by the nearest accessible route from the school in which they are enrolled; provided, that nothing in this chapter shall be construed to prevent a board of education from transporting physically handicapped children, regardless of the distance they live from school, under rules and regulations adopted by the state board of education with the approval of the state commissioner of education; and provided further, that said boards shall have power to purchase school transportation equipment, employ school transportation personnel, and contract for transportation services with persons owning equipment, and pay for same out of funds duly authorized in the budget approved by the quarterly county court; provided further, that said boards in employing school transportation personnel and in contracting for transportation services with persons owning equipment are hereby authorized to enter into contracts for such services for periods of time as long as, but not exceeding, four (4) years from the date of making such contracts, it being the purpose of this section to permit a reasonable degree of employment security for such school transportation personnel.

Equal Rights — Payments to Parents in Lieu of Transportation. 49-2202, Tennessee Code Annotated. All pupils within a county shall be provided equal opportunity to attend school with any other pupil transported at public expense, except as conditions of roads or remoteness may prevent. In all cases where transportation cannot be furnished to a child because of the condition of roads or the remoteness of the home of the child, the local boards of education may, at their discretion, pay to the parents or guardian of such child an amount equal to the average per capita cost of transporting one (1) pupil, such calculation to be based upon the cost determined during the preceding school year; before any child shall be eligible to receive any amount under this section the following conditions must be met: (1) such child must maintain regular attendance in a public school; (2) such child must live more than one and one-fourth (1¼) miles from the school which he is required to attend under the provisions of this chapter; and (3) it must be established to the satisfaction of the local school board that such child lives more than one and one-fourth (1¼) miles from the nearest daily route of a school bus.

Maximum Time in Transit. 49-2203, Tennessee Code Annotated. No pupil shall be allowed to remain in transit to or from school on a school bus more than one and one-half (1½) hours in the morning or one and one-half (1½) hours in the afternoon.

Transportation Free. 49-2204, Tennessee Code Annotated. No pupil shall be charged a fee by the county board of education or by any employee of such board for the privilege of being transported with public funds to any public school.

Approval of Routes by Commissioner. 49-2205, Tennessee Code Annotated. School bus routes shall be subject to the approval of the State Commissioner of Education in order that the most efficient and economical services may be rendered. Provided, however, that this shall only apply where specific request for such approval is made by the county board of education where the school bus routes are located.

Certification of Drivers. 49-2206, Tennessee Code Annotated. No person shall be authorized to drive a school bus in this state unless he possesses a certificate issued by the county board of education. The county board of education is authorized to adopt rules and regulations prescribing the qualifications of school bus drivers in the interest of the safety and health of school pupils.

Temporary Certificates. 49-2207, Tennessee Code Annotated. In the event it should develop that school bus drivers and school bus equipment cannot be obtained in conformity with all the provisions of this chapter, the State Board of Education shall be authorized to issue temporary certificates to school bus drivers and to permit the use of equipment on a temporary basis which does not meet the requirements of this chapter, to the end that school transportation may be provided to all the children of Tennessee at all times and through any emergency that might develop.

Health Examination of Drivers—Revocation of Certificate. 49-2208, Tennessee Code Annotated. The State Board of Education shall require periodic health examinations of school bus drivers and require reports to be made on forms prescribed by the State Board of Education. It shall be the duty of the State Board of Education to revoke the certificate of any school bus driver found to be physically, mentally, or morally unfit to operate a school bus, or who has been guilty of operating a school bus while under the influence of intoxicating beverages.

Safety Specifications for Equipment. 49-2209, Tennessee Code Annotated. Pupils shall be transported in safe equipment constructed of steel or materials providing similar safety, as determined by the State Board of Education, and other safety features shall be included according to specifications for school busses as adopted from time to time by the State Board of Education.

Color and Markings of Busses. 49-2210, Tennessee Code Annotated. School busses shall be of uniform approved color with the necessary marking easily to identify same in accordance with requirements of State Board of Education.

Inspection of Busses. 49-2211, Tennessee Code Annotated. The State Commissioner of Education is hereby directed to have made not less than one (1) inspection annually of each school bus which transports school children, in order to determine whether it can be used safely to protect properly the lives of school children.

Number of Passengers. 49-2212, Tennessee Code Annotated. A school bus shall at no time transport more pupils than the manufacturer's rated capacity for such bus, allowing not less than thirteen (13) linear inches of seat space for each pupil; provided, however, that the State Commissioner of Education may, under rules and regulations approved by him and adopted by the State Board of Education, issue permits to a local board of education allowing the number of pupils transported on a school bus to exceed the limit herein prescribed up to, but not to exceed, twenty (20) per cent of the manufacturer's rated capacity. In no event, however, shall a permit be issued authorizing the loading of a school bus beyond the limits of safety.

Speed Limit. 49-2213, Tennessee Code Annotated. At no time shall a school bus transporting pupils to and from school exceed a speed of 35 MPH, provided that when such school bus is transporting school children on trips other than to and from school, the speed of said bus shall not exceed 50 MPH.

Insurance. 49-2214, Tennessee Code Annotated. No school bus shall be operated to transport pupils to and from school unless said school bus is insured for liability and property damage according to rules and regulations of State Board of Education.

Rules and Regulations. 49-2215, Tennessee Code Annotated. The State Board of Education shall be directed to formulate rules and regulations governing school transportation as needed to protect the lives and welfare of school children.

Exemption From Privilege Tax. 49-2216, Tennessee Code Annotated. No privilege tax shall be collected from any school bus operator or from any board of education for operating a vehicle to transport children to and from school unless such vehicle should be used for profit in transporting other than school pupils. No owner or operator of a school bus used to transport children to or from school shall be liable for any privilege tax, other than registration fees for such bus, for transporting school children to or from any activity during the normal school term, sponsored by or participated in by any public school or the students thereof.

Penalty for Violations. 49-2217, Tennessee Code Annotated. Any willful violation of any provision of this chapter is hereby declared to be a misdemeanor, and any individual or any member of any school board convicted thereof shall be subject to a fine of not less than fifty dollars ($50.00) nor more than one hundred dollars ($100.00), in the discretion of the court.

Suspension of Pupils by Principals. 49-1309, Tennessee Code Annotated. Any principal teacher may for good and sufficient reason suspend a pupil from attendance at school or from riding a school bus until the case is decided by the county board of education, which shall be with as little delay as possible. When any pupil is suspended, said principal teacher shall immediately make written report of such suspension to the county superintendent.

Operators of School Busses and Common Carriers—Licensing. 59-706, Tennessee Code Annotated. (a) No person who is under the age of twenty-one (21) years shall drive any motor vehicle while in use as a school bus for transportation of pupils to or from school, nor any motor vehicle while in use as a public or common carrier of persons or property, nor in either event until he has been licensed as a chauffeur and received a special chauffeur's license.

(b) No person shall be granted a special chauffeur's license unless he has had one (1) year of driving experience prior to the issuance thereof, nor until he files with the division a certificate showing his employment as such chauffeur and one (1) or more certificates signed by a total of at least three (3) responsible people to whom he is well known certifying as to his good character and habits.

(c) No such license shall be granted until the division is fully satisfied as to the applicant's competency and fitness to be so employed.

(d) The division may, in its discretion, impose such rules and regulations for the exercise of such special chauffeurs' licenses, students' permits, applications and licensing of minors and restricted licenses, as it may deem necessary for the safety and welfare of the traveling public.

Overtaking and Passing School Bus. 59-851, Tennessee Code Annotated. (a) The driver of a vehicle upon a highway upon meeting or overtaking from either direction any school bus which has stopped on the highway for the purpose of receiving or discharging any school children shall stop the vehicle before reaching such school bus and said driver shall not proceed until such school bus resumes motion or is signaled by the school bus driver to proceed or the visual signals are no longer actuated.

(b) All motor vehicles used in transporting school children to and from school in this state are required to be distinctly marked "School Bus" on the front and rear thereof in letters of not less than eight (8) inches in height, and so plainly written or printed and so arranged as to be legible to persons approaching such school bus, whether traveling in the same or opposite direction.

(c) The driver of a vehicle upon a highway with separate roadways need not stop upon meeting or passing a school bus which is on a different roadway or when upon a controlled-access highway and the school bus is stopped in a loading zone which is a part of or adjacent to such highway and where pedestrians are not permitted to cross the roadway.

For the purpose of this section, separate roadways shall mean roadways divided by an intervening space which is not suitable to vehicular traffic.

(d) Except as otherwise provided by the preceding paragraphs, the school bus driver is required to stop such school bus on the right hand side of such road or highway, and said driver shall cause the bus to remain stationary and the visual stop signs on the bus actuated until all school children who should be discharged from the bus have been so discharged and until all children whose destination causes them to cross the road or highway at that place have negotiated such crossing.

Any person failing to comply with the requirements of this section, requiring motor vehicles to stop upon approaching school busses, or violating any of the provisions of this section, shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine not to exceed fifty dollars ($50.00) or by imprisonment in the county jail not to exceed ninety (90) days, or by both such fine and imprisonment in the discretion of the court.

(e) The preceding paragraphs and subsections of this section shall not be applicable to the vehicles of street railway companies as defined in

Section 65-1601, Tennessee Code Annotated, while such vehicles are being used for the transportation of school children within a municipality or its environs in the area over which a municipality or a municipal regulatory agency has regulatory jurisdiction under said Section 65-1601.

Exemption of Governmental Agencies. 67-3701, Tennessee Code Annotated. Political subdivisions and governmental bodies and agencies are exempted from the payment of any gasoline privilege taxes and inspection fees on gasoline or distillate when same is purchased by such governmental units and shipped in railroad tank car lots, or a transport tank truck load of at least five thousand (5,000) gallons from points either within or without the state, when same is received, stored, handled, and used in accordance with the provisions of 67-3701—67-3706. The exemptions contained herein are expressly limited to political subdivisions and governmental bodies and agencies of the State of Tennessee and of the Federal Government. The delivery of each railroad tank car lot or transport tank truck load of at least five thousand (5,000) gallons must be completed within seventy-two (72) hours following the commencement of the delivery.

Manner of Handling Exempt Gasoline. 67-3702, Tennessee Code Annotated. In order to be entitled to the exemption conferred, such gasoline or distillate must be received, stored, handled and used strictly in the following manner:

(1) Such gasoline or distillate must be shipped in railroad tank car lots, (or a transport tank truck load of at least five thousand (5,000) gallons from points either within or without the state).

(2) Such gasoline or distillate shall be stored by the governmental unit in storage facilities either owned or leased by the governmental unit. In event such facilities are leased, they shall be separate and apart from the commercial storage facilities of any gasoline dealer or distributor, and the storage facilities must be kept under the exclusive control of such governmental unit at all times. In order for such leased facilities to comply with the provisions of this paragraph it shall be necessary that a copy of the lease be filed with and approved by the Commissioner of Revenue.

(3) Such gasoline or distillate shall be removed from such storage facilities only in equipment owned by the governmental unit. Equipment leased by the governmental unit shall not be considered equipment owned within the meaning of this paragraph.

(4) Such gasoline or distillate shall be used only for governmental purposes and only in equipment owned by the governmental unit. None of said gasoline or distillate shall be used in any equipment owned by any private individual, firm or corporation. Equipment leased by such governmental unit shall not be considered equipment owned by such unit within the meaning of this paragraph.

(5) No governmental unit shall purchase gasoline or distillate within Tennessee except from bonded dealers or distributors.

Claim to Recover Tax and Inspection Fee on Petroleum Products Sold to Governmental Agencies. 67-3703, Tennessee Code Annotated. In order that the relief from the burden of privilege taxes, and inspection fees as provided in 67-3701—67-3706 shall be available and enforced, and to the end that they shall not be reflected in the prices said political subdivisions and governmental bodies and agencies listed in said sections have to pay for gasoline or other petroleum products purchased and stored for use and used by them as provided in said sections, distributors and dealers selling such gasoline and other petroleum products shall file a claim with the Commissioner of Revenue to recover the Tennessee tax and inspection fee on petroleum products sold political subdivisions and governmental bodies and agencies less the Tennessee tax and inspection fee.

Monthly Reports by Governmental Units. 67-3704, Tennessee Code Annotated. All governmental units using tax exempt gasoline or distillate as authorized by 67-3701—67-3706 shall make monthly reports to the Commissioner of Revenue on or before the 20th day of each month showing all gasoline or distillate received during the preceding month. Said reports shall be made on forms to be furnished by the Department of Revenue and shall contain such information as may be required by the Commissioner of Revenue.

Failure of any governmental unit to furnish monthly reports to the Commissioner of Revenue as required by this section shall render such governmental unit liable for the state gasoline tax upon all gasoline or distillate stored or used by such governmental unit for the preceding month and such tax may be collected by the Commissioner of Revenue in the same manner as provided by law for the collection of gasoline taxes from distributors or dealers.

Dealers' and Distributors' Reports of Sales. 67-3705, Tennessee Code Annotated. All dealers and distributors in Tennessee selling gasoline or distillate to any governmental unit shall report said sale to the Commissioner of Revenue upon forms to be furnished by the Commissioner. Any dealer or distributor selling gasoline or distillate to such a governmental unit and failing to report same as required by this section shall be guilty of a misdemeanor, and upon conviction, shall be fined not less than twenty-five dollars ($25.00) nor more than fifty dollars ($50.00).

Liability for Tax on Noncompliance. 67-3706, Tennessee Code Annotated. Any governmental unit using, storing, distributing or selling gasoline or distillate in any manner except strictly in accordance with the provisions of 67-3701—67-3705 shall be liable for the state gasoline tax, and in event of such liability said tax may be collected in the manner now provided by law for the collection of state gasoline taxes.

CHAPTER III

STATE BOARD RULES AND REGULATIONS

A. Operation of School Busses

1. Inspection of school busses
(1947, Ch. 92, Sec. 14) (TCA 49-2211)

In case repairs or corrections are necessary to put equipment in condition to meet State requirements, the State Commissioner of Education is authorized to allow counties a reasonable time to make necessary corrections to meet requirements.

2. Records and reports

The superintendent of schools shall keep records of transportation cost and the number of pupils transported on a monthly basis, and make such reports to the State Commissioner of Education as he may require.

3. Liability insurance
(1947, Ch. 92, Sec. 13)

Minimum liability and property damage coverage shall be not less than the amounts specified in the table below:

Kind of Equipment Passenger Equipment (Seating Capacity)	*Limit for Bodily Injuries to, or Death of, One Person*	*Limit of Bodily Injuries to, or Death of, All Persons Injured or Killed in Any One Accident (Subject to Maximum of $5000 for Bodily Injuries to, or Death of, One Person)*	*Limit for Loss or Damage in Any One Accident to Property of Others (Including Occupants)*
7 passengers or fewer	$10,000	$ 25,000	$5,000
8 to 12 passengers, inc.	10,000	30,000	5,000
13 to 20 passengers, inc.	10,000	40,000	5,000
21 to 30 passengers, inc.	10,000	50,000	5,000
31 passengers or more	10,000	100,000	5,000

4. Limitation of transportation services

No school bus shall enter the boundaries of another school system for the purpose of transporting pupils without the mutual consent of the school systems concerned, under a written agreement signed by the chairman and the secretary of the board of education of each of the said school systems. A copy of the agreement shall be forwarded to the State Commissioner of Education.

5. Condition of school busses

School bus equipment shall be kept in condition to operate safely at all times and shall conform to specifications as hereinafter set forth.

6. Conduct on school busses

   A pupil shall become ineligible for pupil transportation when his behavior is such as to cause dissension on a school bus, or when he disobeys State or local rules and regulations pertaining to pupil transportation.

7. Allocation of funds

   The allocation of minimum program funds for pupil transportation shall be based on the average number of pupils transported more than 1½ miles during the previous year. Deductions for pupils transported in non-approved busses shall be based on the average number of pupils transported more than 1½ miles in non-approved busses during the current school year.

8. Permits for pupil loads beyond rated seating capacity

   Permits shall be granted only up to a maximum of 20% beyond the rated seating capacity of busses in keeping with the provisions of Chapter 159, Public Acts, 1957. Applications for permits for pupil loads beyond the rated seating capacity shall be made on forms provided by the State Commissioner of Education immediately after the opening of schools and not later than the end of the first school month by each superintendent in systems operating school busses.

Cross references to pupil transportation laws:

Approval of bus routes
(1949, Ch. 233, Sec. 2) (TCA 49-2205)

Fees for transportation of pupils prohibited
(1947, Ch. 92, Sec. 5) (TCA 49-2204)

Provisions for issuing bonds for transportation equipment
(1945, Ch. 96, Sec. 1) (TCA 49-719)

Time pupils are allowed to remain in transit
(1947, Ch. 92, Sec. 3) (TCA 49-2203)

Maximum pupil load
(1947, Ch. 92, Sec. 11) (TCA 49-2212) Amended 1959
(1947, Ch. 92, Sec. 15)

Provisions for transportation of pupils in remote areas
(1947, Ch. 92, Sec. 4) (TCA 49-2202)

Transportation for physically handicapped children
(1947, Ch. 92, Sec. 1) (TCA 49-2201)
(1949, Ch. 233, Sec. 1)

Speed limit for school busses
(1947, Ch. 92, Sec. 9) (TCA 49-2213)
(Ch. 38, Public Acts 1961)

Distribution of transportation funds
(1961, Ch. 5, Secs. 4, 7, and 15)

Provisions for four-year contracts for school bus operators
(Ch. 400, Public Acts 1957) (TCA 49-2201)

Amendment to school bus stop law requiring drivers to keep visual stop signs on the bus actuated and to remain stationary until school children cross road or highway.
(Ch. 27, Public Acts 1957)
(Ch. 171, Public Acts 1961)

B. School Bus Drivers

1. Minimum age requirements for school bus drivers
   (1937, Ch. 90, Sec. 5)
   If a new employee, the school bus driver shall be not more than 55 years of age.
2. Each school bus driver shall be informed by the county superintendent, or person designated by him, of all State and local laws and all rules and regulations affecting the safety and welfare of transported pupils.
3. Physical examinations required for all school bus drivers
   (1947, Ch. 92, Sec. 8) (TCA 49-2208)
   The certificate of fitness, based upon a complete physical examination, shall be issued on forms provided by the State Commissioner of Education. This certificate shall be signed by a physician approved by the local board of education. All school bus drivers 55 or more years of age shall have two physical examinations each school year. One of these shall be prior to the opening of school, and the second shall be during the fifth month of each school year.
4. School bus drivers shall be neat in appearance, courteous to parents and children, and co-operative with teachers and school officials.
5. School bus drivers shall not use profanity or tobacco in any form when children are being transported.
6. Each school bus driver shall be responsible for sweeping and cleaning his bus at least once each day.
7. School bus drivers shall obey all State and local traffic regulations and shall assist motorists in passing school bus between stops.
8. Each school bus driver shall report any misconduct of pupils to the principal of the school to which the pupils belong.
9. It shall be the duty of each driver of a school bus to promote safety habits with the group of pupils which he transports.

Cross references to pupil transportation laws:

State Board of Education's authority to revoke certificates of unfit drivers (1947, Ch. 92, Sec. 8) (TCA 49-2208)

Minimum age for school bus drivers and special chauffeur's license (1937, Ch. 90, Sec. 5)

MINIMUM STANDARDS FOR SCHOOL BUSSES (TCA 49-2209)
All school busses purchased by a county or a private contractor shall meet all State requirements. Standards are not retroactive for equipment purchased prior to January 1, 1961.

A. The Bus Chassis

1. Air cleaner

Bus shall be equipped with adequate oil-bath or dry-element type air cleaner mounted outside passenger compartment.

2. Axles

(a) Front axle or other type of suspension assembly shall be of sufficient capacity at ground to support such load as would be imposed by gross vehicle weight 10 per cent in excess of actual gross vehicle weight as defined under power or grade ability formula.

(b) Rear axle shall be full-floating type, and shall have gross weight rating at ground equal to or exceeding that portion of total load which is supported by rear axle.

(c) Chassis manufacturer's rating for each axle on each model used in school busses shall be furnished in duplicate to the State Commissioner of Education.

Exception for small vehicles:

Requirement in Item 2 (b) for full-floating rear axle does not apply to small vehicles not specifically manufactured as school busses.

Exception for transit and metropolitan vehicles:
Front axle shall be wide-track, heavy-duty bus type, and shall have gross weight rating at ground equal to or exceeding that portion of total load which is supported by front axle.
Rear axle shall be full-floating, heavy-duty bus type, and shall have gross weight rating at ground equal to or exceeding that portion of total load which is supported by rear axle.

3. Battery

(a) Storage battery, as established by manufacturer's rating, shall be of sufficient capacity to care for starting, lighting, signal devices, heating and other electrical equipment.

(b) No bus shall be equipped with battery of less than 70 ampere-hours at 12 volts, measured at 20-hour rate.

(c) (1) Battery shall be mounted outside passenger compartment in an adequate carrier and be readily accessible for servicing and removal, preferably from outside passenger compartment.

(2) If battery is not mounted under hood, it shall be mounted on left side of chassis frame so that center line of battery shall be 52 inches back of cowl, and no part of battery shall extend above top of chassis frame.

Exception for small vehicles:

Same as Item (a) above
No bus shall be equipped with battery of less than 50 ampere-hours at 12 volts, measured at 20-hour rate

Same as Item (c) (1) above
Item (c) (2) does not apply
Exception for transit and metropolitan vehicles:
Item (c) (2) does not apply

4. Brakes

(a) Four-wheel brakes, adequate at all times to control bus when fully loaded, shall be provided.

(b) Foot or service brakes shall, at all times, be capable of stopping complete unit (i.e., wet chassis weight, plus body weight, plus driver's weight, without pupils) from speed of 20 miles per hour in not more than 30 feet, such distance to be measured from point at which movement of service brake pedal or control begins. Test for stopping distance shall be made on substantially level (not to exceed plus or minus one per cent grade) dry, smooth, hard surface that is free from loose material.

(c) (1) Chassis shall be equipped with auxiliary brake capable of locking rear wheels and capable of holding vehicle on any grade on which it is operated under any conditions of loading on a surface free from snow or ice. Operating controls of such auxiliary brake shall be independent of operating controls of service brakes.

(2) Under test conditions outlined in Item (b) above auxiliary brake shall be capable of stopping vehicle from speed of 20 miles per hour in measured distance of 50 feet.

(d) Chassis designed for any bus body of 48 or greater basic pupil load shall be equipped with full compressed air brakes, vacuum-actuated power of assistor-type brakes, or compressed-air-over hydraulic brakes.

(1) Such installation shall be made by authorized representative of chassis or brake manufacturer, and shall conform to recommendation of that manufacturer.

(2) Hydraulic line pressure shall not exceed recommendation of chassis or brake manufacturer.

(3) Reservoir capacity shall be at least 1650 cubic inches for full compressed air systems, and at least 1000 cubic inches for vacuum-actuated systems and for compressed-air-over-hydraulic systems.

(4) Busses having full compressed air systems shall be equipped with:

(a1) At least two reservoirs (or one vessel divided into two compartments) connected in series.

(a2) Safety valve mounted on first reservoir to protect air-brake system against excessive air pressure, and check valve mounted in optional location.

(a3) Air gauge mounted on instrument panel to register air pressure in air-brake system.

(a4) Audible low pressure indicator to warn driver if air pressure in air-brake system falls below 60 pounds per square inch.

(5) Busses having vacuum-actuated or compressed-air-over-hydraulic systems shall be equipped with check valve located between source of supply and reservoir.

5. Bumper, front

(a) Front bumper shall be furnished by chassis manufacturer as part of chassis.

(b) Front bumper must extend to outer edges of fenders at bumper top line (to assure maximum fender protection) and be of sufficient strength to permit pushing vehicle of equal gross weight without permanent distortion to bumper, chassis, or body.
Exception for transit and metropolitan vehicles:
Same as above, except front bumper shall be furnished by body manufacturer.

6. Clutch

Clutch torque capacity shall be not less than 10 per cent in excess of maximum net torque output of engine. All chassis of 48 and 54 pupil capacity busses shall be equipped with clutch of 11-inch minimum diameter. Chassis of 60 and greater pupil capacity busses shall be equipped with clutch of 12-inch minimum diameter or clutch of equivalent performance.

7. Color

Chassis, including wheels and front bumper, shall be black; hood, cowl, and fenders shall be in National School Bus Chrome. (See page 47.)

8. Drive shaft

Drive shaft shall be protected by metal guard or guards to prevent it from whipping through floor or dropping to ground if broken.
Exception for small vehicles:
Standard does not apply to vehicles with torque tube drive shaft.

9. Electrical system

(a) Battery—see page 37.

(b) Generator or alternator—see page 41.

(c) Lamps and signals—see page 53.

(d) Wiring—see page 60.

10. Exhaust system

(a) Exhaust pipe, muffler, and tail pipe shall be outside bus body and attached to chassis.

(b) Tail pipe shall be constructed of seamless or electrically welded tubing of 16-gauge steel or equivalent and shall extend at least 5 inches beyond chassis frame.

(c) Size of tail pipe shall not be reduced after it leaves muffler.

(d) Exhaust system shall be properly insulated from fuel tank and tank connections by securely attached metal shield at any point where it is 12 inches or less from tank or tank connections.

(e) Noise level shall not exceed 125 sones as measured by Beranek-Armour-ATA Tone Equivalent Method.

11. Fenders, front

(a) Total spread of outer edges of front fenders, measured at fender line shall exceed total spread of front tires when front wheels are in straight-ahead position.

(b) Front fenders shall be properly braced and free from any body attachment.

(c) Chassis sheet metal shall not extend beyond rear face of cowl. Exception for transit and metropolitan vehicles:
Standard does not apply.

12. Frame

(a) Frames or equivalent shall be of such design as to correspond at least to standard practice for trucks of same general load characteristics used for severe service.

(b) When frame side members are used they shall be of one-piece construction. If frame side members are extended, such extension shall be designed and furnished by chassis manufacturer with his guarantee, and installation shall be made by either chassis or body manufacturer and guaranteed by company making installation. Extensions of frame lengths are permissible only when such alterations are behind rear hanger of rear spring, and shall not be for purpose of extended wheel base.

(c) Holes in top or bottom flanges of frame side rails shall not be permitted except as provided in original chassis frame. There shall be no welding to frame side rails except by chassis or body manufacturer.

13. Frame lengths (See table under Body sizes, page 46.)

14. Fuel tank

(a) Fuel tank shall have minimum capacity of 30 gallons, be made of 16-gauge terneplate or equivalent, and be mounted directly on right side of chassis frame entirely outside body.

(b) Flexible gasoline and oil-proof connection shall be provided at engine end of fuel feed line.

(c) Tank shall be equipped with adequate baffles.

(d) Engine supply line shall be taken from top of tank.

(e) Drain plug at least ¼ inch in diameter shall be located in center of bottom of tank.

(f) Measurements contained in this paragraph are for guidance of chassis manufacturers and serve only to prevent need for replacement of original tank.

(1) Tank shall not extend in height above side member of chassis.

(2) Distance from center line of chassis to outside of tank shall be not more than 39 inches.

(3) Bottom of tank shall be not more than 14 inches below top of frame.

(4) Distance from cowl to front of tank shall be 42 inches minimum.

(5) Distance from cowl to center of filler cap shall be 57 inches.

(6) Distance from center line of chassis to center of filler cap shall be 44 inches with plus or minus tolerance of ½ inch tolerance permitted.

(7) Center of filler cap shall be 1 inch below top of frame with tolerance of ¼ inch permitted.

Exception for small vehicles:

Fuel tank shall be mounted, filled, and vented outside body.

Exceptions for transit and metropolitan vehicles:

Fuel tank shall have minimum capacity of 30 gallons, be made of 16-gauge terneplate or equivalent, and be mounted away from left side of bus entirely outside passenger compartment. Bottom of tank shall not be exposed below skirt of body side paneling.

Engine supply line shall be taken from upper portion of tank and shall be adequately protected.

Drain plug at least ¼ inch pipe size shall be located in bottom of tank.

Filler cap shall be entirely outside passenger compartment.

15. Generator or alternator

Generator or alternator with rectifier shall have maximum output of at least 35 amperes with either low cut-in or charge-at-idle type (12-volt system) and shall be ventilated, voltage-controlled, and current-controlled.

Exception—Small vehicles:

Generator or alternator with rectifier shall have maximum output of at least 30 amperes with 12-volt system, and shall be ventilated, voltage-controlled, and current-controlled.

16. Governor

Governor is permissible, and, where used, it shall be approved by chassis manufacturer.

Exception for transit and metropolitan vehicles:

When engine is remotely located from driver, governor shall be installed to limit engine speed to maximum revolutions per minute recommended by engine manufacturer, or tachometer shall be installed so engine speed may be known to driver.

17. Horn

(a) Bus shall be equipped with horn or horns of standard make, each horn capable of producing complex sound in band of audiofrequencies between approximately 250 and 2,000 cycles per second and having total sound level of 110 decibels within these frequency limits when measured at point on axis of horn 3 feet from exit of horn.

(b) Sound-level measurements shall be made with meter that complies with American standard Z24.3-1944, or current revision thereof, as promulgated by American Standards Association, Inc. Measurement shall be made with meter set to flat response (C weighting network).

(c) Sound level measurements shall be made with horn or horns installed on bus. There shall be no reflecting walls or obstacles other than ground and vehicle closer than 100 feet from horn during sound-level measurements.

18. Instruments and instrument panel

(a) Bus shall be equipped with following instruments:

(1) Speedometer showing speed
(2) Odometer giving accrued mileage (or hubometer may be used instead)
(3) Ammeter
(4) Oil-pressure gauge
(5) Water-temperature indicator
(6) Fuel gauge
(7) Upper-beam headlamp indicator
(8) Air pressure or vacuum gauge, where air or vacuum brakes are used.

(b) All instruments shall be easily accessible for maintenance and repair.

(c) Above instruments shall be mounted on instrument panel in such manner that each is clearly visible to driver. Lights in lieu of gauges are not acceptable.

(d) Instrument panel shall have lamps of sufficient candlepower to illuminate all instruments.

19. Oil filter

Oil filter of replaceable element or cartridge type shall be provided, and shall be connected by flexible oil lines if it is not of built-in design. Oil filter shall have oil capacity of at least 1 quart.

20. Openings

All openings in floorboard or firewall between chassis and passenger-carrying compartment such as gearshift lever and auxiliary brake lever, shall be sealed unless altered by body manufacturer.

21. Over-all length

Over-all length of bus shall not exceed 35 feet.

22. Passenger load

(a) Gross vehicle weight (i.e., wet chassis weight, plus body weight, plus driver's weight of 150 pounds, plus weight of maximum seated pupil load based on not less than 100 pounds per pupil) shall not exceed maximum gross vehicle-weight rating as established by manufacturer.

(b) Manufacturer's gross vehicle-weight rating shall be furnished in duplicate (unless more are requested by the State Department of Education) by manufacturer to the State Department of Education. The State Department of Education shall, in turn, transmit such rating to each other State agency responsible for the development of enforcement of State Standards for School Busses.

23. Power or grade ability

(a) Chassis must be so geared and powered as to be capable of surmounting 3.7 per cent grade at speed of at least 20 miles per hour with full load on a continuous pull in direct drive.

(b) Grade ability is to be calculated using the following formula and table:

$$G = \frac{33750 \times \text{H.P.}}{\text{G.V.W.} \times \text{M.P.H.}}$$

—1.5 (for busses having seating capacity up to and including 67 pupils).

Or

—1.2 (for busses having seating capacity of 68 or more pupils).

Where G = Grade in per cent

H.P. = Certified net horsepower delivered at road speed (M.P.H.)

G.V.W. = Gross vehicle weight (See table below)

M.P.H. = Miles per hour vehicle is driven

Rolling Resistance = 1.5 or 1.2 (depending on seating capacity of bus.)

Pupil Capacity	*Gross Vehicle Weight (G.V.W.)*
36	Chassis (wet) plus 7,500 lbs.
42	Chassis (wet) plus 8,600 lbs.
48	Chassis (wet) plus 9,800 lbs.
54	Chassis (wet) plus 10,800 lbs.
60	Chassis (wet) plus 11,900 lbs.
66	Chassis (wet) plus 13,200 lbs.

24. Shock absorbers

(a) Bus shall be equipped with front double-action shock absorbers of adequate size.

(b) Rear shock absorbers are optional.
Exception for small vehicles:
Standard does not apply to small vehicles not specifically manufactured as school busses.

25. Springs

(a) Springs or suspension assemblies shall be of ample resiliency under all load conditions and of adequate strength to sustain loaded bus without evidence of strain.

(b) Springs or suspension assemblies shall be designed to carry their proportional share of gross vehicle weight in accordance with requirement for weight distribution.

(c) Rear spring shall be of progressive type.

(d) Stationary eyes of front springs shall be protected by wrapper leaf in addition to main leaf.

Exception for small vehicles:
Springs that are regular equipment on vehicle to be purchased may be used.

26. Steering gear

(a) Steering gear shall be approved by chassis manufacturer and designed to assure safe and accurate performance when vehicle is operated with maximum load and at maximum speed.

(b) Steering mechanism shall provide for easy adjustment for lost motion.

(c) No changes shall be made in steering apparatus which are not approved by chassis manufacturer.

(d) There shall be a distance of at least 2 inches between steering wheel and cowl instrument panel, windshield, or any other surface.

(e) Power steering is permissible if approved by chassis manufacturer.

27. Tires and rims

(a) Tire and rim sizes, based upon current standards of Tire and Rim Association*, shall be required.

(b) In order to allow for reasonable tolerance, total weight imposed on any tire shall not be greater than 10 per cent above current standard of Tire and Rim Association.

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*Current standards may be obtained from Tire and Rim Assn., 2001 1st Natl. Tower, Akron 8, Ohio, or from tire manufacturers.

(c) Dual rear tires shall be provided on all vehicles.

(d) All tires on given vehicle shall be of same size and ply rating.

(e) Spare tire, if used, shall be suitably mounted in accessible location outside passenger compartment.
Exception for small vehicles:
Same as above, except that dual rear tires are not required.

28. Transmissions

(a) Transmission shall be synchromesh or constant-mesh type. It shall be of sturdy construction, and input torque capacity shall be at least 10 per cent above maximum net torque developed by engine. Its design shall provide not less than four forward and one reverse speeds.

(b) Automatic transmissions are permissible.
Exception for small vehicles:
Three-speed transmissions are acceptable.

29. Weight distribution

Weight distribution of fully loaded bus on level surface shall be such that not more than 75 per cent of gross vehicle weight is on rear tires and not more than 35 per cent is on front tires.
Exception for transit and metropolitan vehicles:
With engine inside front of body: If entrance door is ahead of front wheels, not more than 75 per cent of gross vehicle weight shall be on rear tires, nor more than 50 per cent on front tires. If entrance door is behind front wheels, not more than 75 per cent of gross vehicle weight shall be on rear tires, nor more than 40 per cent on front tires. With engine in rear: Not more than 75 per cent of gross vehicle weight shall be on rear tires, nor more than 40 per cent on front tires.

B. The Bus Body

1. Aisle

(a) Minimum clearance of all aisles, including aisle (or passageway between seats) leading to emergency door, shall be 12 inches. (See item (b) (6) under doors, page 48.)

(b) Aisle support of seat backs shall be slanted away from aisle sufficiently to give aisle clearance of 15 inches at tops of seat backs.

2. Battery (See Item 3, Battery, page 37.)

3. Body sizes

Bodies for conventional body-on-chassis type vehicles shall be limited to length shown in table below. Sizes are based on 27 inch center-to-center spacing between rows of forward-facing seats, overall width of 96 inches, center aisle width of 12 inches, and average rump width of (a) 13 inches for 3-3 seating plan, and (b) 15 inches for 3-2 seating plan. Body lengths are measured from back of cowl to rear of body at floor level.

Number of Rows of Seats	Pupil Capacity		*Maximum Body Length (in inches)*	*Minimum Measurement, Cowl to Center Line of Rear Axle (in inches)*	** Minimum Measurement, Cowl to End of Frame (in inches)*
	3-3 Plan; Rump Width of 13 Inches	*3-2 Plan; Rump Width of 15 Inches*			
4	24	20	174	102	174
5	30	25	187	123	187
6	36	30	215	126	215
7	42	35	243	142	243
8	48	40	272	160	272
9	54	45	301	192	301
10	60	50	330	211	330
11	66	55	355	229	355

*Body co. shall cut frame for body length but in no case will splicing of frames be acceptable.

Exception for small vehicles:

Small vehicle may vary in capacity up to 23 pupils, may be narrower than larger vehicle, and body may have been converted from one originally manufactured for other purposes.
Exception for transit and metropolitan vehicles:
Measurements in preceding table do not apply.

4. Book racks
   - (a) Book racks, if installed, shall be provided above side windows within range from front cross-seat to rear transverse seat except across or above emergency door.
   - (b) Racks shall be free of projections likely to cause injury.

5. Bumper, front (See exception under Bumper, front, page 39.)

6. Bumper, rear
   - (a) Rear bumper shall be of pressed steel channel at least 3/16 inch by 7 inches.
   - (b) It shall be full wrap around to both sides and shall be so attached as to prevent hitching of rides.
   - (c) It shall be bolted to chassis frame and braced with material of impact ratio comparable to that of bumper material.
     Exceptions for small vehicles:
     Rear bumper shall be furnished by chassis manufacturer as part of chassis.
     Rear bumper shall be of sufficient strength to permit vehicle's being pushed without permanent distortion to bumper, chassis, or body.
     Exception for transit and metropolitan vehicles:
     Rear bumper shall be of sufficient strength to permit fully-loaded vehicle's being pushed without permanent distortion to bumper or body. It shall be so designed as to prevent hitching-to or riding-on, and shall be long enough to protect full width of body.

7. Ceiling (See Insulation and Interior, page 52.)

8. Color

   (a) School bus body including hood, cowl, and fenders shall be painted uniform color, National School Bus Chrome, according to specifications available from General Services Administration.

   (b) Rear bumper and lettering shall be black.

   (c) Body trim, if used, shall be black.

9. Construction

   (a) Construction shall be all-steel or other metal with strength at least equivalent to all-steel as certified by bus body manufacturer.

   (b) Construction shall provide reasonably dustproof and watertight unit.

   (c) Bus body (including roof bows, body parts, and floor) shall be of sufficient strength to support entire weight of fully loaded vehicle on its top or side if overturned. It shall have sufficient frame members (strainers, stringers, etc.) in roof structure and corners to provide adequate safety and to resist damage on impact. As evidence that bus body meets this standard, manufacturer shall furnish, for each current body model, certification in duplicate (unless more are requested by the State Department of Education) that bus body meets School Bus Body Manufacturers' Association Static Test Code for School Bus Body Structure. Consideration of impact resistance shall be a prime factor in body design in compliance with code requirements. Copies of Code shall be furnished, in duplicate, (unless more are requested by the State Department of Education) by School Bus Body Manufacturers' Association to the State Department of Education. The State Department of Education shall, in turn, transmit Code and certification for each current body model to each other State agency responsible for development of enforcement of State Standards for School Busses.

   (d) Floor

      (1) Floor shall be of metal at least equal in strength to 14-gauge steel.

      (2) All openings between chassis and passenger-carrying compartment made due to alterations by body manufacturer must be sealed.

   (e) See Item 2 of Exception for transit and metropolitan vehicles under Fuel Tank.

   Exceptions for small vehicles:

   Item (c) does not apply to small vehicles not manufactured specifically as school busses.

   Item (d): Floor on small vehicles not manufactured specifically as school busses shall be manufacturer's standard.

   Exception for transit and metropolitan vehicles:

Item (e): Floor shall be constructed of metal at least equal in strength to 14-gauge steel; or of 5-ply plywood at least ⅝ inch thick and found by standard test to be at least equal in strength to 14-gauge steel, provided that it equals or exceeds properties of exterior type Douglas fir plywood, "B-B Grade," as specified in standard issued by U. S. Department of Commerce.**

10. Defrosters

Defrosters shall be of sufficient capacity to keep windshields clear of fog, ice, and snow. Defroster shall take heat directly from approved heater. (See specifications for defroster fan under heater.)

11. Doors

(a) Service door:

(1) Service door shall be power or manually operated, under control of driver, and so designed as to afford easy release and prevent accidental opening. When hand lever is used, no parts shall come together so as to shear or crush fingers.

(2) Service door shall be located on right side of bus opposite driver and within his direct view.

(3) Service door shall have minimum horizontal opening of 24 inches and minimum vertical opening of 65 inches.

(4) Service door shall be of split type or sedan type. (Split-type door includes any sectioned door which divides and opens inward or outward.) If one section of split-type door opens inward and other opens outward, front section shall open outward.

(5) Lower as well as upper panels shall be of safety glass. See (Item (a) under windshield and windows, page 59.) Bottom of lower glass panel shall be not more than 35 inches from ground when bus is unloaded. Top of upper glass panel shall be not more than 6 inches from top of door.

(6) Vertical closing edges shall be equipped with flexible material to protect children's fingers.

(7) There shall be no door to left of driver. (This shall not be interpreted to conflict with Item (b) (1) below.)

(b) Emergency door and emergency window:

(1) Emergency door shall be located in center of rear end of bus, or in rear half of left side of bus if engine is so located as to make it impossible to place door in center of rear end.

(2) Emergency door shall have minimum horizontal opening of 24 inches and minimum vertical opening of 48 inches measured from floor level.

**Commercial Standard CS45-48 for Douglas Fir Plywood: A recorded Voluntary Standard of the Trade (eighth edition), issued by U. S. Department of Commerce, and obtainable from U. S. Government Printing Office, Washington 25, D. C., price 10 cents.

(3) Emergency door shall be hinged on right side if in rear end of bus, and on front side if on left side of bus. It shall open outward and shall be labeled inside to indicate how it operates.

(4) Upper portion of emergency door shall be equipped with approved safety glass, exposed area of which shall be not less than 12 inches in height and 20 inches in width. (See Item (a) under windshield and windows, page 59.)

(5) There shall be no steps leading to emergency door.

(6) No seat or other object shall be so placed in bus as to restrict any part of passageway, leading to either rear or left side emergency door, to an opening smaller than a rectangle of 12 inches horizontal width and 48 inches vertical height (measured from floor level), when bus is standing on level ground.

(7) When not fully latched, emergency door shall actuate signal audible to driver by means of mechanism actuated by latch. (Current to emergency door shall be controlled by ignition switch.)

(8) Emergency door shall bear words, "EMERGENCY DOOR", both inside and outside in letters at least 2 inches high. Words shall be placed directly above emergency door.

(9) If emergency door is located on left side of bus:

(a1) Window at rear shall be designed as emergency exit and shall be no smaller than 16 inches in height and 54 inches in width on busses 80 inches or more in width; it shall be no smaller than 16 inches in height and 48 inches in width on busses less than 80 inches in width. Window shall be hinged from top and devised and operated to insure against accidental closing in emergency.

(a2) Paneling is required to cover space between top of rear divan seat and inside of emergency window at rear.

(10) Emergency window shall bear words, "EMERGENCY EXIT", both inside and outside in letters at least 2 inches high. Words shall be placed directly above emergency window on inside, and below on outside.

(11) Both emergency door and emergency window shall be designed to open from inside and outside bus, and shall be equipped with fastening device which may be quickly released, but so designed as to offer protection against accidental release. Control from driver's seat shall not be permitted. Provision for opening from outside shall consist of non-detachable device so designed as to prevent hitching to, but to permit opening when necessary.

Exception for small vehicles:

Substitute following standard for those above.

Service door shall be located to right of driver and shall be manually controlled from driver's seat by over-center control for bus-type conveyance.

Emergency door shall be located in center of rear end of bus and shall be equipped with fastening device for opening from inside and outside body, which may be quickly released but is designed to provide protection against accidental release. Metal guard shall be placed over door control on inside unless control is recessed in panel construction. Control from driver's seat shall not be permitted. Provision for opening from outside shall consist of device of such design as to prevent hitching-to, but to permit opening when necessary.

Door shall open either vertically or horizontally. When vertical type door is used, there shall be unobstructed aisle at least 12 inches wide.

Emergency door shall be marked "EMERGENCY DOOR" on inside.

There shall be no steps leading to emergency door.

No seat or other object shall be so placed in bus as to restrict passageway to emergency door to less than 12 inches.

12. Electrical system

(a) Battery—see page 37.

(b) Generator or alternator—see page 41.

(c) Lamps and signals—see page 53.

(d) Wiring—see page 60.

13. Fire extinguisher

(a) Bus shall be equipped with at least one dry-chemical type fire extinguisher of at least 2½ pound capacity, mounted in extinguisher manufacturer's bracket of automotive type, and located in driver's compartment in full view of and readily accessible to driver.

(b) Fire extinguisher shall bear label of Underwriter's Laboratories, Inc., showing rating of not less than 4-B:C.

14. First-aid kit

(a) Bus shall carry Grade A metal first-aid kit and Type II contents conforming to specifications as set forth in current Federal Specifications GG-K-391a, mounted in full view and in accessible place in driver's compartment.

(b) Number of units and contents shall be designated by proper State authorities from following GG-K-391a table:

Item	*16 Unit*
Bandage compress, (sterile gauze pads) 4-inch	2
Bandage compress, (sterile gauze pads) 2-inch	1
Adhesive absorbent bandage (adhesive tape) 1-inch	2
Triangular bandage, 40-inch	1

Gauze bandage, 4-inch	1
Absorbent-gauze compress	1
Burn compound, 1/8-ounce	2
Antiseptic applicators (swab type) Iodine or nitromersol tincture N.F. or thimersol N.F.	2
Ammonia inhalants	1
Wire splints	1
Tourniquet and forceps	2

15. Floor (see construction, page 47.)

16. Floor covering

(a) Floor in underseat area, including tops of wheel housing, driver's compartment, and toeboard, shall be covered with fire-resistant floor covering material of type commonly used in passenger transportation equipment. Floor covering shall be of rubber or linoleum and shall have minimum overall thickness of 0.125 inch. (Linoleum floor covering shall be made with oxidize linseed-oil binder having cork filler and placed on burlap or felt backing.)

(b) Floor covering in aisle shall be of aisle-type rubber, non-skid and wear-resistant. The minimum overall thickness shall be 0.140 inch measured from top of ribs.

(c) Floor covering must be permanently bonded to floor and must not crack when subjected to sudden changes in temperature. Bonding or adhesive material shall be waterproof and shall be of type recommended by manufacturer of floor-covering material. All seams must be sealed with waterproof sealer.
Exception for small vehicles:
Floor covering on small vehicles not manufactured specifically as school busses shall be manufacturer's standard.

17. Heaters

(a) Heaters shall be of hot-water or combustion type.

(b) If only one heater is used, it shall be of fresh air, or combination fresh air and recirculating type.

(c) If more than one heater is used, additional heaters may be of circulating type.

(d) Where hot-water heaters are used, they shall bear the name plate rating of School Bus Body Manufacturer's Association Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment, plate to be affixed by heater manufacturer. Copies of Code shall be furnished in duplicate (unless more are requested by the State Department of Education) by School Bus Body Manufacturer's Association to the State Department of Education. The State Department of Education shall, in turn, transmit such Code to each other State agency responsible for development or enforcement of State Standards for School Busses.

(e) All combustion-type heaters shall be approved by Underwriter's Laboratories, Inc.

(f) If combustion-type heaters are used, they shall be installed on new busses by body manufacturers, and on busses now in operation by authorized dealers, or by authorized garages.

(g) Heaters shall be capable of maintaining inside temperature of 50 degrees Fahrenheit at average minimum January temperatures as established by U. S. Department of Commerce, Weather Bureau, for area in which heater is required.

(h) At least one heater shall be located near the front of the bus and connected to the windshield defroster. This heater shall have a separate heavy duty fan which is designed to distribute air only through the defroster.

18. Identification

(a) Body shall bear words "SCHOOL BUS" in black letters at least 6 inches high on sides and 8 inches on both front and rear of body, or on signs attached thereto. Lettering on front and rear shall be placed as high as possible without impairment of its visibility. Lettering shall conform to "Series B" of Standard Alphabets for Highway Signs. Instead of "School Bus" on side of body, the name of county preceding the "County Schools" may be used.

(b) Words "STOP ON SIGNAL" shall be painted on rear of bus. The word "STOP" shall be in 8 inch letters and the words "ON SIGNAL" in 3 inch letters.

(c) Only signs and lettering approved by state law or state regulation shall appear on sides of bus.

(d) The use of the decal type reflector lettering is permissible. When reflector tape is used it shall be confined to bumper rub rails and belt line under bottom of windows.

19. Inside height

Minimum inside height shall be 70 inches measured at longitudinal center line from back of first row of seats to back of next-to-last row of seats.
Exception for small vehicles:
Minimum inside body height shall be 50 inches.

20. Insulation

Ceilings and walls shall be insulated with proper materials to deaden sounds and to reduce vibrations. If thermal insulation is used, it shall be fire-resistant material of type approved by Underwriter's Laboratories, Inc.

21. Interior

(a) Interior of bus shall be free of all unnecessary projections likely to cause injury. This standard requires inner lining on ceiling and walls.

(b) Ceiling over aisles shall be free of all projections.

22. Lamps and signals

(a) All lamps and their installation shall conform to current standards and recommendations of Society of Automotive Engineers.

(b) Headlamps: Bus shall be equipped with headlamps and fuses or circuit brakers.

(c) Clearance and side-marker lamps: Clearance and side-marker lamps (amber at front, red at rear) shall be mounted as high as possible on permanent structure of bus and in such manner as to indicate extreme width of body. Clearance lamps and side marker-lamps may be in combination.

(d) Tail and stop (brake) lamps:

(1) Bus shall be equipped with two tail lamps and two stop (brake) lamps not in combination, emitting red light plainly visible for distance of 500 feet to rear. Stop (brake) lamps shall have light intensity at least equal to Class A, Type I turn-signal units as established by Society of Automotive Engineers.

(2) Tail lamps shall be mounted not less than 40 inches from surface on which vehicle stands. Stop (brake) lamps shall have 6-inch red lens with the word "Stop" molded into each lens and mounted as high as practicable but below window line and spaced as far apart laterally as practicable but not less than 3 feet. Measurements shall be taken from lamp centers.

(e) License-plate lamp: Bus shall be equipped with rear license-plate illuminator. This lamp may be combined with one of tail lamps.

(f) Interior lamps: Interior lamps shall be provided which adequately illuminate interior aisles and step-well.

(g) School bus warning signal lamps:

Definition: School bus warning signal lamps are alternately flashing lamps at same horizontal level, intended to identify vehicle as school bus, and to inform other users of highway that such vehicle is about to stop, or is stopped, to take on or discharge school children.

(1) Bus shall be equipped with two red lamps at rear of vehicle and two amber lamps at front at vehicle, which shall be controlled by manually actuated switch and shall flash alternately at rate of 60 to 120 cycles per minute. No brake-operated switch shall be permitted.

(2) There shall be visible or audible means of giving clear and unmistakable indication to driver when signaling system is turned on.

(3) Alternately-flashing warning signals shall meet current specifications of Society of Automotive Engineers.*

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*29 West Thirty-ninth St., New York 18, New York.

(4) Installation requirements:

(a1) Each signal lamp shall be mounted with its axis substantially parallel to longitudinal axis of vehicle.

(a2) Front and rear signal lamps shall be spaced as far apart laterally as practical, but in no case shall spacing between lamp centers be less than 3 feet.

(a3) Location of front signal lamps shall be such that they can be clearly distinguished when headlamps are lighted on lower beam.

(a4) Signal lamps shall be mounted at front above windshield, and at rear so that lower edge of lens is not lower than top line of side-window openings.

(a5) Vision of front signal lamps to front and of rear signal lamps to rear shall be unobstructed by any part of vehicle from 10 degrees above to 10 degrees below horizontal, and from 20 degrees to right to 20 degrees to left of center line of vehicle.

(a6) Area around lens of each alternately flashing signal lamp (amber on front, red on rear) and extending outward approximately 3 inches shall be painted black. In installations where there is no flat vertical portion of body immediately surrounding entire lens of lamp, circular or square band of black approximately 3 inches wide, immediately below and to both sides of lens, shall be painted on body or roof area against which signal lamp is seen (from distance of 500 feet along axis of vehicle.)

(h) Turn-signal units. Each bus shall be equipped with Class A-1 turn signals that meet the specifications of the Society of Automotive Engineers.

(1) Rear signals:
Each bus shall be equipped with two turn signals with 6-inch red full visible lens. Turn signals shall be placed on each side of the rear of bus as near the outside corners as the flat surface will permit just below the window-level. Red arrow lenses will be optional.

(2) Front signals:
Two front turn signals with 6-inch amber full visible lens shall be placed on each side of bus on body cowl just below windshield level,

or

Front turn signals may be fender type with full visible lens not less than 4 inches in diameter. If fender type is used, signals shall be double-faced with amber lens in front and red lens in rear. Fender type shall be mounted at the highest point on fender.

(3) Operation switch for turn signals:
Turn signals shall be operated by manually controlled switch,

and installation shall include telltale type indicator which is visible to driver.

(4) Alternately-flashing type:
Turn signals shall be alternately-flashing type (front to rear).

(i) Reflectors:
Each bus shall be equipped with two red and two amber reflectors with a minimum reflective surface of 3 inches in diameter. All reflectors shall be located at floor level.

(1) Rear reflectors:
One red reflector shall be located on each side of the last panel covering the widest point of the body at the rear of bus.

(2) Front reflectors:
One amber reflector shall be located on the left side on the first panel covering the full width section of the body. The one amber reflector on the right side shall be installed on the first panel behind the entrance door.

(j) Flags and flares:

(1) School bus shall carry at all times at least three red cloth flags not less than 12 inches square and means for mounting for use in warning traffic in event of prolonged stops on highway.

(2) Bus shall carry at least three red electric lanterns or at least three red emergency reflectors, to be displayed according to State law in event of prolonged stops on highway.

(3) All flags and flares shall be approved by the State Department of Education.

23. Mounting

Chassis frame shall extend to rear of body cross member.

24. Over-all width

Over-all width of bus shall not exceed 96 inches.

25. Posts (See construction, page 47, and Item (b) under windshield and windows, page 59.)

26. Rear vision

(a) Interior rear-view mirror designed to minimize glare, and large enough (at least 6 by 30 inches) to afford good view of pupils and roadway to rear shall be installed. If not metal-backed, such mirror shall be of laminated plate safety glass. It shall have rounded corners and protected edges.

(b) One exterior rear-view mirror designed to minimize glare shall be provided to the left of the driver. Area of mirror shall be not less than 96 square inches. The mirror shall be firmly supported and set to give driver clear view past left rear of bus.

27. Rub rails

Two rub rails of ample strength to resist impact and to prevent body crushing shall be provided on each side of body. They shall be applied to full outside length of body, on left side from windshield post to rear corner radius. One rail shall be located approximately at seat line, and one approximately at floor line. Pressed-in or snap-on rub rails do not satisfy this requirement.

28. Seats

(a) All seats shall have minimum depth of 14 inches.

(b) In determining seating capacity of bus, allowable average rump width shall be:
  (1) 13 inches where 3-3 seating plan is used.
  (2) 15 inches where 3-2 seating plan is used.
  (See table under Body sizes.)

(c) All seats shall be forward-facing and shall be securely fastened to that part or those parts of bus which support them. (See Item (b) under Aisle, page 45.)

(d) No bus shall be equipped with jump seats or portable seats.

(e) Forward-most pupil seat on right side of bus shall be located so as not to interfere with driver's vision, not farther forward than guard rail behind or rear of driver's seat when adjusted to its rearmost position.

(f) Minimum center-to-center seat spacing shall be 26 inches. Distance between driver's seat when adjusted to its rear-most position and front face of seat-back of forward-most pupil seat on left side of bus shall not be less than 24 inches measured at cushion height.

(g) Padding and covering on all seats shall be of such materials as will not flash or explode upon contact with spark or open flame.

(h) Minimum distance between steering wheel and back rest of driver's seat shall be 12 inches. Driver's seat shall have fore-and-aft adjustment of not less than 3 inches and shall be strongly attached.

(i) Minimum of 36-inch headroom for sitting position above top of undepressed cushion line of all seats shall be provided. Measurement shall be made vertically not more than 7 inches from side wall at cushion height and at fore-and-aft center of cushion.

(j) Backs of all seats of similar size shall be of same width at top and of same height from floor and shall slant at same angle with floor.

(k) Where grab handles on seats are used, they shall be enclosed. Exceptions for small vehicles:

All seats shall be securely fastened to body of vehicle.

Seats shall be covered with fire-resistant padding material and comfortably upholstered with adequate padding.

Jump seats or portable seats shall not be used.

Seat beside driver, if regular equipment or installed by vehicle manufacturer, may be used for pupil seating. It shall be securely fastened to body and shall be so constructed as not to interfere with pupils entering or leaving vehicle.

Thirteen inches shall be allowable average rump width in determining seating capacity of bus.

All seats shall be at least 14 inches in over-all depth.

If forward-facing seats are used, they shall be so placed that distance from center to center measured at top center of back shall be not less than 26 inches.

If longitudinal seats are used, only two shall be installed and distance between front edges of seat cushions shall be at least 20 inches. Back rest for each longitudinal seat shall measure at least 8 inches vertically and shall be so mounted that its top edge is at least 12 inches above seat.

29. Stanchions and guard rails

(a) Vertical stanchion shall be installed at right rear corner of driver's seat in such position as neither to interfere with adjustment of driver's seat nor to obstruct 12-inch aisle. Guard rail, approximately 30 inches above floor, and so placed as not to interfere with fore-and-aft adjustment of driver's seat, shall extend from vertical stanchion to left-hand wall behind driver's seat.

(b) Stanchion shall be installed at rear of entrance step-well from roof to floor. Placement shall not restrict entrance passageway to less than 24 inches or aisle to less than 12 inches.

(c) Guard rail and step-well guard panel shall be installed from step-well stanchion to right-hand wall to prevent children in front seat from being thrown into step-well in case of sudden stop. Guard rail shall be approximately 30 inches above floor and its guard panel shall not restrict entrance passageway to less than 24 inches at any level. Panel shall extend from guard rail to within 2 inches of floor. If panel extends over or into step-well opening, it must be flanged at floor line so as to close any openings between panel and floor.

(d) Clearance between step-well guard panel and first pupil seat shall be at least 24 inches measured from panel to front face of seat back at cushion height.

(e) Bus body entrance stanchion, driver's stanchion, guard rail and grab handle shall be of stainless, chrome plated steel or plastic covered metal tubing of 18-gauge with an outside diameter of 1-inch.

30. Steering wheel (See Item (d) under Steering gear, page 44.)

31. Steps

(a) First step at service door shall be not less than 12 inches and not more than 16 inches from ground.

(b) Riser of upper step at service door shall be not more than 15 inches. When more than two steps are used, risers must be within ½ inch of equal height.

(c) Steps shall be enclosed to prevent accumulation of ice and snow.

(d) Steps shall not protrude beyond side body line.

(e) Grab-handle not less than 10 inches long shall be provided in unobstructed location inside doorway.

(f) Surface of steps shall be non-skid material.

Exception for small vehicles:
Steps (if any) on small vehicles not manufactured specifically as school busses shall be manufacturer's standard.

32. Stop signal arm

Each bus shall be equipped with a stop-signal arm constructed of substantial material and so designed as to facilitate operation by the bus driver while driving the bus. The stop-signal arm shall be of the semaphore type, shall be mounted on the left side of the bus, and shall be so designed as to be seen readily by motorists approaching the bus from either the front or rear. The color of the stop-signal arm shall be white with the word "Stop" in 6-inch red letters on both sides.

33. Storage compartment

Metal container of adequate strength and capacity for storage of tire chains and/or tow chains and such tools as may be necessary for minor emergency repairs while bus is en route shall be provided. Such storage container may be located either inside or outside passenger compartment but, if inside, it shall have cover (seat cushion may serve this purpose) and be fastened to floor in right rear portion of bus.

34. Sun shield

Interior adjustable sun visor not less than 6 by 16 inches in size shall be installed above windshield.

35. Tail pipe

Tail pipe shall not extend beyond rear bumper. (See Item (b) under Exhaust system, page 39.)

36. Undercoating

Entire outside of body, including floor members and side panels below floor level, shall be coated with asphalt-base or rubber-base undercoating material, applied by spray method at least ⅛ inch thick in order to seal, to deaden sound, to insulate, and to prevent oxidation.

37. Ventilation

(a) Body shall be equipped with suitable controlled ventilating system of sufficient capacity to maintain proper quantity of air under operating conditions without opening of windows except in extremely warm weather.

(b) If static-type exhaust roof ventilators are used, they shall be installed in low-pressure area of front roof panel.

Exception for small vehicles:
Standard does not apply to small vehicles not manufactured specifically as school busses.

38. Wheel housings

(a) Wheel housings shall be of full open type.

(b) Wheel housings shall be attached to floor sheets in such manner as to prevent any water or dust from entering body.

(c) Inside height of wheel housing above floor line shall not exceed 10 inches.

(d) Wheel housings shall provide clearance for dual wheel chains as established by Chain Institute, Inc.*

Exception for small vehicles:
Standard does not apply to small vehicles not manufactured specifically as school busses.

39. Width (See Over-all width, page 55.)

40. Windshield and windows

(a) All glass in windshield, windows, and doors shall be of safety glass, approved by state law,** so mounted that permanent mark is visible, and of sufficient quality to prevent distortion of view in any direction.

(b) Windshield shall be large enough to permit driver to see roadway clearly, shall be slanted to reduce glare, and shall be installed between front corner posts that are so designed and placed as to afford minimum obstruction to driver's view of roadway.

(c) Each full side window shall provide unobstructed emergency opening at least 9 inches high and 22 inches wide. If one piece windows are used, stops shall be provided so that maximum opening will not be greater than 10 inches.

(d) All exposed edges of glass shall be banded.

(e) Glass in windshield area shall be of AS-1 quality; glass area in windows and panels shall be of AS-2 quality. Permanent markings shall be visible in each glass area.

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*111 West Washington St., Room 1171, Chicago 2, Illinois.

**See current Safety Code for Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways (Z26.1), obtainable from American Standards Association, Inc., 10 East Fortieth Street, New York 16, New York.

41. Windshield washers

Windshield washers shall be optional but, where required, shall conform to body manufacturer's recommendations as to type and size for bus on which they are to be used.

42. Windshield wipers

Bus shall be equipped with two positive-action windshield wipers of vacuum, air, or electric type.

43. Wiring

(a) All wiring shall conform to standards of Society of Automotive Engineers*

(b) Circuits:

(1) Wiring shall be arranged in at least eight regular circuits, as follows:

(a1) Head, tail, stop (brake), and instrument panel lamps
(a2) Clearance lamps
(a3) Dome and step-well lamps
(a4) Starter motor
(a5) Ignition and emergency door signal
(a6) Turn-signal units
(a7) Alternately-flashing signal lamps
(a8) Horn

(2) Any of above combination circuits may be subdivided into additional independent circuits.

(3) Wherever heaters and defrosters are used at least one additional circuit shall be installed.

(c) Wherever possible, all other electrical functions (such as sanders and electric-type windshield wipers) shall be provided with independent and properly protected circuits.

(d) All wires within body shall be insulated and protected by covering of fibrous loom (or equivalent) which will protect them from external damage and minimize danger from short circuits.

(e) All light circuits shall be such as to provide bulb design voltage at light bulb terminals.

(f) Wires shall be fastened securely at intervals of not more than 24 inches. All joints shall be soldered or joined by equally effective connectors.
Exception for small vehicles:
Wiring shall be manufacturer's standard.

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*29 West Thirty-ninth St., New York 18, New York.